The Builder.

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Westhope Manor, Shropshire ..... Mr. E. Guy Dawber, A.R.I.B.A., Architect.
Chancel Screen, St. John Baptist, Potter's Bar ..... Drawn by Mr. Roland W. Paul.
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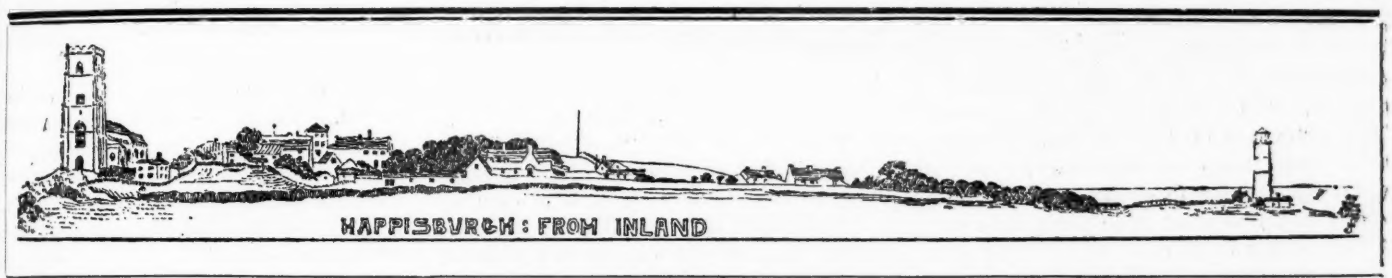


HAPPISBURGH: FROM INLAND

The Church of Happisburgh.

ON the edge of the coast of Norfolk, about half way between Winterton and Cromer, stands the church of Happisburgh, dedicated in honour of the Blessed Virgin. The considerable height of its tower makes it a well-known feature, for it stands on a slight elevation of this low-lying coast, called Happisburgh Hill, which the guide-books usually exaggerate into a "lofty eminence." Apart from the size and dignity of the church, its history is of some little importance and interest. The Conqueror granted the town of Happisburgh to Roger Bigot, and Bigot bestowed it in marriage with his daughter Maud on William de Albini, ancestor of the Earls of Arundel and Sussex. When William, at the beginning of the twelfth century, founded the priory of Wymondham, which was then a cell of St. Alban's, he bestowed the whole town and church on that religious house. On the occasion of the burial of his wife, Maud, at Happisburgh, William de Albini renewed his grant of the manor after a solemn fashion, confirming the gift by offering on the high altar of the parish church, through the hands of the Bishop of Norwich, a silver cross that served as a shrine for relics of the true Cross, of our Lord's manger-crib, and of the Virgin's sepulchre, together with his gold ring, and a beautifully-wrought silver cup to be reserved for the Eucharist. The proceedings are set forth in detail in the register of St. Alban's in the Cottonian collection, where it is stated that there were two exceptions to the gift of the whole manor, namely, the land of Anscot the Chamberlain and one little house (*mansiuncula*) called Eccles. The occasion of the interment of Maud de Albini must have been a grand day for Happisburgh; and it may reasonably be inferred that the Early Norman church then standing was a building of some considerable size and dignity to be selected for this purpose. The burial was attended not only by Ebrard, Bishop of Norwich, but by the priors of Wymondham, Norwich, Thetford, and Castleacre, and by a host of other clerks and laymen.

There are various references to Happisburgh in Walsingham's chronicles of St. Albans. Ralph de Nuers, the fourth prior of Wymondham, by his hot temper is said to have been the cause, *circa* 1160, of the violent quarrel that broke out between William, Earl of Arundel, the descendant of the founder, and Robert, Abbot of St. Alban. Eventually the Earl opposed with violence the attempt of the Abbot to visit the church of Happisburgh, driving him from its very doors, with the result that the Earl was cited before the Archbishop of Canterbury and was in danger of excommunication. A compromise was, however, at last brought about through the intervention of the Earl of Essex and other lay mediators. A composition of 1228 arranged that the vicars of Happisburgh should be episcopally instituted on the presentation of the prior of Wymondham, without any interference from St. Albans. A few years later there was another quarrel in which Happisburgh was concerned, namely, a dispute between the Prior of Wymondham and the Archdeacon of Norfolk. The former forbade the Archdeacon visiting the church of Happisburgh or holding his courts on the manor. The strife was referred to Rome, and settled in the year 1249 in favour of the Archdeacon.

The church and manor of Happisburgh was by far the most valuable endowment held by the priory of Wymondham in the thirteenth and fourteenth centuries. In 1291, the annual value of the rectory of Happisburgh, appropriated to the monks, was the then large sum of 35*l.* 6s. 8d.; an amount that was only surpassed by ten other churches in the great county of Norfolk, and those pertaining to important places such as Yarmouth, East Dereham, North Walsham, or Diss. Their lands and manorial rights at Happisburgh afforded the monks, according to the same return, a further income of 59*l.* 12s. 11¾d. The stipend of the Vicar of Happisburgh, which was originally arranged at a pittance of five marks yearly, was altered before the thirteenth century closed for payment in kind and fees. To him was assigned by the priory the tithes of flax and hemp, of calves, poultry, geese, pigs, general merchandise, and gardens, as well as all oblations, and mortuary and testamentary fees. But there was clearly more than one priest at this

great church; for various charters and rolls of the fourteenth century refer to chaplains of Happisburgh, though how they were supported cannot now be definitely ascertained. Judging, however, by analogy, these extra parochial clergy were in all probability supported by the voluntary contributions of the various guilds. It is known from pre-Reformation Norfolk wills that there were four guilds in connexion with the parish church of Happisburgh, namely those of St. Mary, the Holy Trinity, St. John Baptist, and St. Anne. There were also lights kept burning before the Rood, and before the images of St. Nicholas, the patron saint of sailors, St. Mary, St. Margaret, and St. Erasmus.

The present church of Happisburgh is a fine lofty building, consisting of chancel, clearstoried nave with aisles, south porch, and a high western tower. It is surpassed in beauty of design and in finish, in this county of fine churches, by Worstead, Cromer, Salle, Causton, and possibly by two or three others, but certainly may be reckoned among the ten or twelve best churches of fifteenth-century date, when there was such an extensive ecclesiastical rebuilding throughout the whole of East Anglia. There is no tradition as to the date of the rebuilding, but a special circumstance in the history of the great house of Wymondham offers a probable clue. Stephen London, an ambitious man, who became Prior of Wymondham in 1446, secured its freedom as a cell of St. Albans in 1448, and its conversion into an independent abbey. The promotion of London was signalised with much pomp and ceremony; it was a part of his policy to exalt Wymondham in every way, and what more likely than that he should see to the rebuilding of their most important church of Happisburgh, in the new and popular style, as soon as Wymondham secured the right to the unhindered use of her own funds, and to an entire independence of superior control. At all events, the style of the work, when compared with other Norfolk examples, seems to be nearer the middle than the end of the fifteenth century.

Notwithstanding the great scheme of rebuilding carried out at that period, the fabric has some trace of earlier work. The chancel has now no windows on the north side. The upper part of the wall shows, from the exterior, two blocked-up square-headed clearstory windows. Below them have been two large openings that are now somewhat difficult to define. There are traces of the foundations of a late building of some size against this wall at the east end of the north aisle. It is stated that some remains of Norman work were found here at a restoration about twenty years ago; if so, it is possible that this is the site of the burial of Maud de Albini in the twelfth century, and that the chapel was afterwards altered, and used perhaps as a commodious vestry. The three-light east window of the chancel is a modern imitation of fifteenth-century work. The two south windows, with quatrefoils in the heads, and the crocketed hood of the piscina niche on that side are *circa* 1360. The Decorated style was late in dying out in Norfolk, and there are not a few instances in which quatrefoil work in the upper tracery of a window can be shown to be fairly advanced in the fifteenth century and used synchronologically with downright Perpendicular work; but in this case there is no doubt of the tracery being earlier. The outer wall on the south side of the chancel shows traces of a former chapel separated from the chancel by an arcade of two arches. Probably these windows belonged originally to the chapel.

There is one trace in the nave of an earlier fabric than the present well-designed building. At the east end of the north aisle, close to the small doorway that gave access to the rood-loft stairway, part of the capital of a respond of a fourteenth-century arcade is exposed. It is about 3 ft. below the capital of its successor of the next century. The corbelled chancel arch seems also to be of fourteenth century date.

The nave is separated from the aisles by arcades of five lofty arches on each side, supported by octagon piers and responds. The aisles are lighted throughout by large pointed windows of the same date, and there are also five good clearstory windows on each side. There is a small square-headed three-light window above the chancel arch. The octagon font at the west end of the nave is a handsome example of the fifteenth century, and obviously coeval with the rebuilding of the tower and body of the church. It stands on a flight of three octagonal steps, the space below the uppermost one being panelled with quatrefoils. The bowl bears the Evangelistic symbols, alternating with angels playing musical instruments. The octagon base is supported by alternate "woodwoses" and lions under canopies. The woodwose, usually corrupted into "woodhouse" or "wodehouse," was a wild man of the woods, and is usually represented with a natural growth of long shaggy hair all over the body. The woodwose was a distinctive feature of later mediæval pageants and masques in England. The figure was also used as an heraldic supporter in the bearings of several families of distinction. The use of these strange figures as supporters of font bases is met with in many fourteenth-century churches throughout East Anglia, usually in association with lions. Possibly they were first used in such a position owing to their heraldic connexion with the family of the donor of the font, and were afterwards put in the same place, without the like reason, as a conventional ornament of some school of font carvers.

In the south wall of the south aisle, between the two most eastern windows, is a large squared recess, about 3 ft. wide by 6 ft. high. It has had three richly ornamented crocketed canopies, now much mutilated, but still bearing traces of bright colouring and gilding. This must have been designed for some particular group of imagery, or for a group of three associated saints connected with the chapel or altar at the end of this aisle. Possibly this was the site of the altar associated with the Guild of the Holy Trinity.

There is a fairly good fifteenth-century rood-screen remaining, but none of the rood-loft. Mr. J. S. Cotman made an outline etching of this screen in 1811, but gives none of the base, which was probably then obscured by pews. There are three arches in the screen each side of the central opening, and each is divided into two openings with cinquefoil heads. At an extensive restoration in the "eighties," the lower panels of the screen were needlessly divided into two by strips of perpendicular moulding that were not part of the original design. These panels were in the first instance painted with winged angels—very possibly representing the different grades of the heavenly hierarchy—and the result is that traces of half an angel and one wing appear in each of the subdivided panels with semi-comic effect. The spandrels of the panelling are well carved and differ in each case. Small dragons, eagles, and human faces may be noticed, as well as foliage. The tracery of the upper part is good and richly developed, though rather toilsomely "improved" at the restoration with lighter wood. Within the screen are plain returned stalls with poppyheads of the same date. Under the tower is a panelled chest inscribed "1708, W. H. Midelton Churchwar."

Among the Harleian MSS. of the British Museum are the heraldic church notes of Norfolk taken by Robert Kemp in the year 1575. With regard to this church he wrote:—

"Hapesboroughe Churche in the chauncell window.

Clifton.—Bendy of x pieces argent et goulis
Goulis a playue crosse argent.

Erpringham.—Vert a schochion and an orle of merles argent.

Felbrige.—Or a lyon saliaunt goulis
Azur 3 Crownes or spered argent.

Aslacke.—Argent a Chevron inter iij Katherine wheeles sable.

Ufforde.—Sable a crosse engr' or.

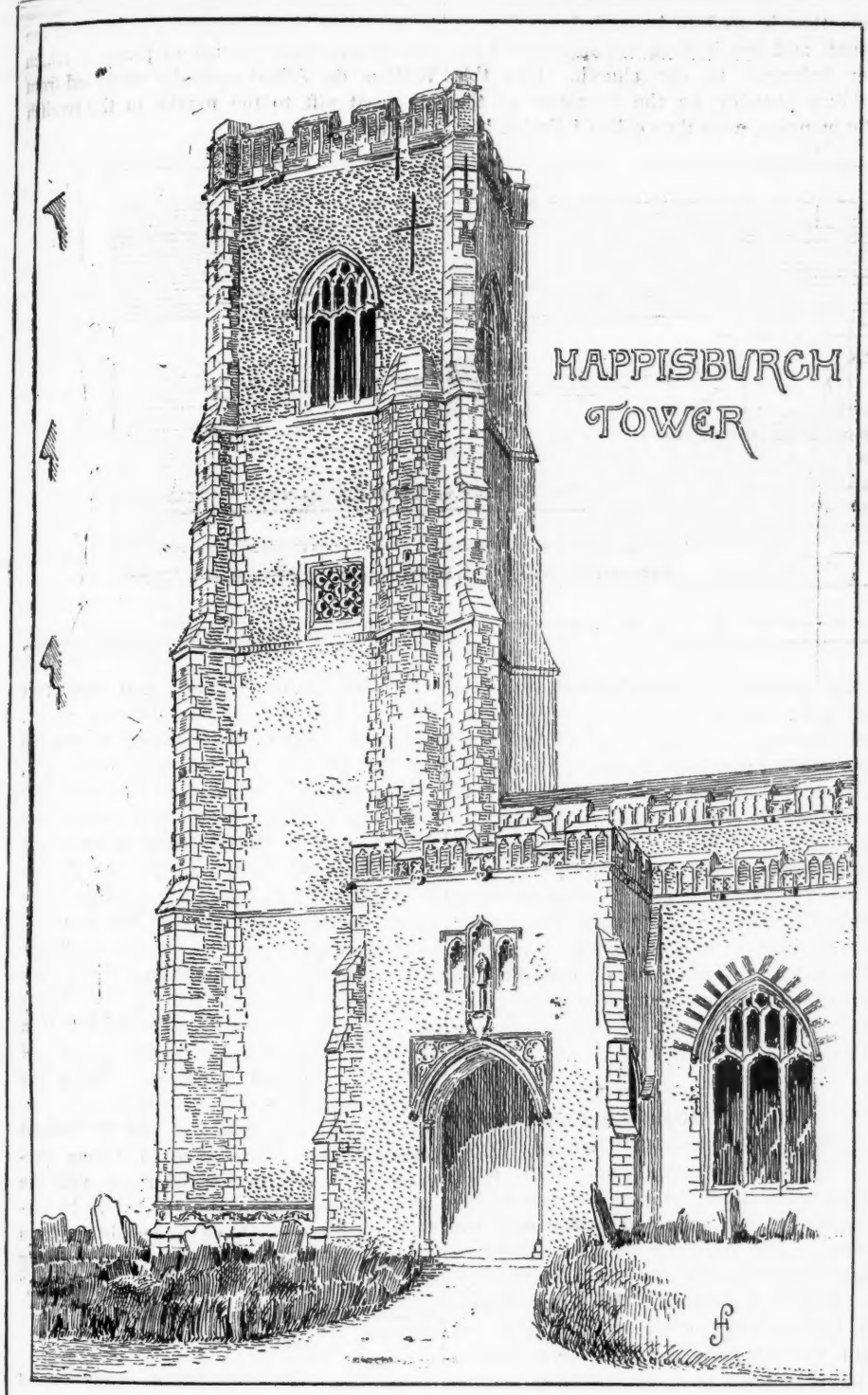
Fastolfe.—Or et azur Cartelle or Quarterlie."

All this heraldic display has long ago disappeared. There are no old monuments left in the church, but it is said that various inscribed stones were covered up after restoration. Against the north wall of the north aisle is a large mural brass to James Slater, for thirty-six years Vicar of Happisburgh with Walcot; he died in 1895.

The handsome south porch has a well-designed image-niche over the entrance, between two single lights communicating with the parvise or room above. In the niche, on a pedestal, is a fairly good figure of the Blessed Virgin and Holy Child; it is said to be the original, and, strange to say, has escaped mutilation. Within the porch, on the right hand of the inner doorway, is the large recess for the holy water stoup. The parvise is gained by a stairway from the church, but it is quite clear of all fittings or remains; it never had a fireplace. On the opposite side of the church to the porch is a large disused north doorway.

The fine lofty tower, which used to have pinnacles at the angles, now stands about 110 ft. high. It is divided into four stages. The base mouldings of the wall-plate are handsomely worked in flowing tracery and in small pannelled arcades of flints and freestone. The third stage has those large square openings so characteristic of Norfolk towers, termed "sound holes," filled with tracery. The highest stage has four pointed three-light windows of some size; unfortunately, the window to the west has lost its tracery, which gives a rather forlorn look to the church as it is approached by the main road from that side. The west doorway of the tower has ten shields in the deep moulding round it, as well as two in the spandrels, but they are all uncharged.

A former adjunct to this church, in an unusual place, remains to be noted. At the west end of the south aisle there has been a building of some size, having an internal measurement of about 21 ft. by 13 ft., the



end of the aisle and the side of the tower forming two of the outer walls. The building had a gabled roof. In the west wall of the aisle, about the centre of the east end of this adjunct, is a niche some 4 ft. by 18 in. with trefoil head. The small holes drilled in the sides of the stonework of this niche, and the two larger ones at the base show that it was originally protected by an iron grille, and had a small platform or shelf in front, which was probably intended for votive offerings. At any rate, an image or figure stood here, either of exceptional beauty and delicacy, such as one of alabaster, or else one that was specially venerated and had some cult of its own. There was no direct communication with the church from this building, which is an exceptional feature in its construction, for any kind of chapel or adjunct at the west end is most unusual. Possibly a thorough search among pre-Reformation wills might throw some light on the image that was here so carefully protected.

Quite ninety per cent. of the Norfolk churches, owing to the lack of stone and the cost of transit in bringing it from a distance, are constructed of flint or pebbles set in concrete, and merely faced with stone at the quoins and angles and round the windows and doorways. This sparsity of moulded stone often prevents the tracing of buildings of an older date among the component parts of rebuilt structures, as can often be done in the stone districts of England; but a careful examination of the interior of Happisburgh tower brought to light at least two examples of early Norman moulding pertaining to the church as known to William de Albini, court butler to Henry I. Several other stones appear to have been tooled with the Norman diagonal axing.

When the Valor Ecclesiasticus was taken in 1535, the value of Happisburgh to Wymondham Abbey was less than it had been at the end of the thirteenth century. The rectory was only returned as worth 16*l.* per annum; the manor and lands, with pasturage for 700 sheep, was valued at 49*l.* 13s. 8d. a year; and there was also an average gain of 6s. 8d. to the abbey from wreckage on the coast; and of 3*l.* 6s. 8d. in manorial court fees and fines.

Such a fine church as Happisburgh was doubtless well equipped with costly furniture and fittings, the gifts of the Abbey of Wymondham, of the larger families of the district, and more especially of the parochial guilds. At the beginning of Edward VI.'s reign, his Council profited largely not only by seizing chantry, collegiate, and hospital lands, but by taking no small amount of the goods and valuables from the churches. In 1551 the Privy Council coolly "decreed that forasmuche as the Kinge's Majestie had neede presently of a masse of mooney, therefore Commissions shulde be addressed in to all shires of Englande to take into the Kinge's handes suche churche plate as remaigneth to be emploied so unto his Highness use.' On September 2, 1552, Sir William Fayrmer, Sir John Robsant, and Sir Christopher Heydon, together with Osbert Momford, Robert Barney, and John Callybute, esquires, visited Happisburgh as Royal Commissioners, when the following indented inventory was drawn up between them and John Callowe and Robert Elwyn, the parish churchwardens.

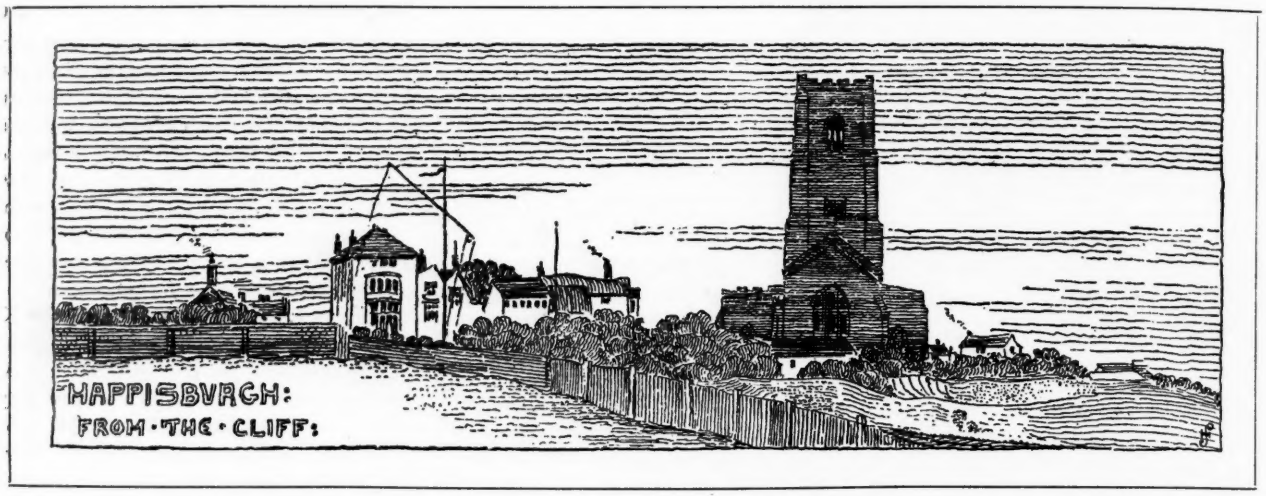
"In primis ij chales with ij pattens. Whereof the one ys doble gylt and the other parcell gylt, the doble gylt weaying xij ownces and iij quarters en ye ownce iijs. iiij*d.*, and the parcell gylt x ownces, every ownce iijs. iiij*d.*	iiij*li.* xjs. xj*d.*
Item one payre of sencers of sylver parcell gylt, weying xxiiij ownces, every ownce iijs. iiij*d*...	iiij*li.* viijs.
Item iij copes, wherof one of blewe vellet, another of rede vellet, another of blake satten, vallowed att.....	xiijs. iiij*d*
Item iij vestmentes, wherof one of blake vellet, another of whyt damaske, the thyrd of grene satten, vallowed att	xs.
Item j crose of copper, vallowed att	vj*d.*
Item ij handbelles, weying by estymacion xvj*li.*	ijs.
Item iij steple belles, the best bell weying by estymacion vj*c.*, the second bell x*c.*, the third bell xiiij*c.*	xxij*li.* xs.
Item ij clappers valued att	ijs.

Wherof assygned to be occupyed and used in the mynistracion of Devyn Servyce the lest chales and the lest bell."

It is not likely, judging from the weight, that either of these chalices could be the great cup (evidently from the description of secular origin) given to the church by William de Albini in the twelfth century. Of the miserable remnant of church goods left to Happisburgh by Edward VI., the paten pertaining to "the best chales" is still in use, and is one of the eleven mediæval patens extant in England that bears an inscription. The gilt is worn off, but it is otherwise in good preservation. The paten, which is 4⅞ in. in diameter, has the Vernicle in the centre (formerly enamelled), with a slightly forked beard and cruciform nimbus. The legend, in black letter punched on the rim is:—*Accipite ex hoc est eni corpus meum quod p vobis tradetur.* The hallmarks give the London date letter for 1504-5.

On the south-east of the churchyard is a small house called the Rectory, or the Old

Rectory. The grange of the monks of Wymondham, with their tithe barns and other manorial buildings, was in a different part of the parish. This "rectory" is somewhat of a puzzle. It is stated by old inhabitants that it used to be called the Church House, and yet it does not appear to have ever belonged to the church. Can this building possibly be the successor of the little mansion, even then called "Eccles" or church (that may have been the site of the first pre-Norman house of prayer), which William de Albini specially excepted from his great gift to the monks in the twelfth century?



NOTES.

Trade Unions and Workmen.

THE case of "Read *v.* The Friendly Society of Operative Stonemasons" is one of great importance and interest both to employers and workmen. Although the facts at first sight seem somewhat complex and the law rather subtle, the real point is perfectly plain and simple. The gist of the whole matter is that Trade Unions, whether representing masters or men, may not act so as to cause a third person to break his contract with one with whom the Trade Union has any concern. In the case in question, the plaintiff was apprenticed to Messrs. Wigg & Wright, builders, of Ipswich. Rule 6 of the Trade Union for the Ipswich District was to the effect that in no case should an apprentice be more than sixteen years of age, whereas the young man in question was considerably over this age. We need not consider the wording and meaning of this rule, upon which the Trade Union and the masters held different opinions. In the result, however, the Trade Union obliged the builders to dismiss the apprentice, who thereupon brought the action in question. The County Court Judge, before whom the case was first tried, held that there was no right of action against the Trade Union, because they had acted in a *bonâ-fide* manner and without malice. The Court of Appeal and the Court of King's Bench came, however, to a different conclusion, on the short ground that the Trade Union had conspired to enforce action, by threats of a character which they had the means of carrying into effect. "Belief," said the Master of the Rolls, "however honest, that in what they did they were acting in the best interest of the Society of Masons, could be no excuse for conspiring to deprive the plaintiff of the advantages of his contract." In other words, where there is a contract between two persons it is not legal for a union to bring pressure upon one of them to depart from it. That is to say, the Trade Union for its own ends has induced a person to commit an actionable wrong. The distinction between what is right and what is wrong under such circumstances may be illustrated by another example. If the plaintiff had been an ordinary workman and the Trade Union had persuaded him to leave his employers, giving them due notice, this would have been a perfectly legal action on their part, because no contract would have been broken. In all cases in which Trade Unions bring pressure to bear upon masters by causing workmen to leave their employment, they are doing a legal act so long as the workmen depart from their engagement under proper terms. Of course, this decision will be regarded with dissatisfaction by Trade Unions; but the truth is that at the present moment the law may be said to be safeguarding the interests of masters and non-union men, just as a few years ago it was building up a code of case law for the protection of Trade Unions.

Proposed Strand Bridge.

THE Highways Committee of the London County Council have acted wisely in postponing indefinitely the consideration of the suggestion for a proposed bridge over the Strand. The difficulty is just what we expected it would be—the junction of the proposed road with Waterloo Bridge. As the roadway could not be in a line with the roadway of Waterloo Bridge, it ought to have been evident from the first that the junction with the bridge would be a very awkward problem, difficult to arrange as regards convenience to traffic, and impossible to arrange without spoiling the bridge. We do not think anything more will be heard of the scheme.

Drains from Semi-detached Houses.

THE case of Humphrey *v.* Young (*Times*, November 7) again raised the point on which we commented in the case of Woodford Urban District Council *v.* Stark (the *Builder*, March 29, 1902). A summons had been taken out by the Sanitary Authority against the respondent for refusing to make certain alterations in the drains of a pair of semi-detached houses. The houses had one continuous roof and were divided by a party wall which did not go up through the roof, and was separately let and separately assessed, but the drain or sewer served both houses. The Justices found as a fact that the houses were two separate buildings, and, in consequence, that the drain was a sewer and vested in the Local Authorities and the respondent was not liable. The Divisional Court refused to disturb this finding of fact, and held that each case must stand on its own merits. The importance of the decision lies in the fact that the case of Hedley *v.* Webb (1901, 2 Ch., 126), in which Justice Cozens-Hardy held a pair of semi-detached houses one building within the meaning of Section 4 of the Public Health Act, 1875 (the Section in question here), has been considered by some a binding authority on the question. In that case, however, Justice Cozens-Hardy also said it must be a question of fact in each case, and householders will be wise to remember this, as on a question of fact it is useless to attempt to review the decision of the Court of first instance. Seeing the diverse decisions that have been given on this simple question of fact, and the interest Sanitary Authorities have in taking proceedings, it is a matter of regret that the private householder should, before he embarks on litigation, have no certain guide as to what in fact constitutes "one building only, or premises within the same curtilage," within the meaning of the Act.

A New Bridge in Munich.

AN interesting example of masonry bridge construction is to be found in the Max Joseph Bridge, now approaching completion in Munich. This structure is essentially a three-hinged arch crossing the river in a single span of 210 ft., rising 19 ft. 6 in. from the springing to the crown, which is 3 ft. 9 in. in thickness. The roadway and footpaths, having a combined width of 59 ft., are carried by auxiliary arches, the piers of which are supported by the main arch. Including the approaches, the bridge has a total length of 298 ft. 6 in. The masonry is of limestone, with the exception of the granite bearing-stones for the steel hinges. The main structure is practically finished, but some architectural features remain to be executed, including columns with bronze bas-reliefs, which have been designed by Professor Fischer, of Stuttgart.

Tunnelling on the Weston Aqueduct, Boston.

ONE of the tunnels for the Weston aqueduct of the Metropolitan Waterworks, Boston, appears to have developed quite unexpected conditions during construction. It was anticipated as the result of soundings that the

tunnel in question would be through solid rock, although work was commenced where the upper part of the excavation was in clay. The theory was that the rock formation would be struck at a higher level, but as things turned out the whole cross-section was not brought into rock until the tunnel had been driven for about 915 ft. Timbering was employed from the first, but owing to the belief stated above, it was of inadequate strength. The result was that the timbers began to crush and sag, and collapse was only averted by the addition of stouter supports. In one place along the first 915 ft. of tunneling the rock dropped just below the elevation of the invert, and in two places it rose slightly above the crown of the arch. The rock penetrated is a seamy, broken granite, and the clay is so hard as to require blasting, but so intersected with sand as to be unsafe without substantial support. Trouble also arose in consequence of a sand pocket, which yielded so much water that nearly a week was occupied in driving through a length of 6 ft. The circumstances stated above serve to show the risks and uncertainties of tunnelling work, but it is difficult to understand why, in this case, anything should have been left to chance. We fear that mishaps in tunnelling are too often attributable to misplaced optimism on the part of some person in charge of operations.

Dynamo Design.

On Tuesday last Mr. H. A. Mavor read a paper on the design of direct-current dynamos and motors to the Glasgow local section of the Institution of Electrical Engineers. The paper, from the nature of the subject chosen, was necessarily of a very technical character, and the author's attempt to popularise it by putting most of the formulæ into appendices, so that "the text be not unduly defaced," is not to be commended. In our opinion, to put a lengthy mathematical formula into words is a useless proceeding, as it demands quite as much knowledge on the part of the reader, and takes up far more space. Mr. Mavor points out that the ratio between the iron and copper in the armature of a motor is not a fixed quantity, but depends on the nature of the work it has to do. If, for example, it is run from the supply mains on a very variable load, the iron losses should be kept low, as they are practically constant at all loads; but if the load is constant, then the ratio of copper to iron should be designed so that the combined losses are a minimum. As slotted armatures are now almost universal, and as consumers demand machines in which it is not necessary to change the position of the brushes with the load, motor design has become a very complicated problem; but Mr. Mavor's diagrams seem to show that there are several simple laws governing it. He states that in large dynamos the power generated varies directly as the speed of rotation, and that the total "lost power" radiated from the armature varies as the square root of the speed.

Chadderton Free Library Competition.

An architect who had applied for the conditions for the competition for Chadderton Free Library, sends us the following extract from them:—

"The payment to the successful architect will be a sum equal to 5 per cent. for plans, details, and superintendence, and 2½ per cent. for quantities and measured bills on the total cost of the whole work.

The architect must state at the time of competing what amount will be allowed from this sum towards the salary of the clerk of works, whom the Council will appoint."

This is a new and most unheard-of proposal; and we may add that this is one of the cases in which competitors are asked to deposit a guinea before they can obtain a copy of the conditions of the competition; which makes it still worse. He parts with his guinea to obtain a copy, and then finds that it contains this improper stipulation, to which he cannot and ought not to accede, and his guinea is gone without redress. Perhaps a public notice of the matter may save some other readers from wasting their guineas.

Petworth Church, Sussex.

It is stated that an application will shortly be made to the Chancellor of the Diocese of Chichester for a faculty in respect of the fabric of the parish church of St. Mary, Petworth, Lord Leconfield having undertaken to bear the expense of reinstating the nave and of carrying out various improvements of the interior. The church, as erected in the latter part of the fifteenth century, was for the most part rebuilt, under Sir Charles Barry's superintendence, at a cost of 16,000*l.*, defrayed by the Earl of Egremont, ancestor of the present Baron Leconfield. The church comprises a nave, chancel, north and south aisles, with an old chapel dedicated to St. Thomas at the end of the north aisle, in which were buried several members of the house of Percy, Earls of Northumberland, to which family the manor formerly belonged. The monument to their memory was sculptured, in 1837, by Carew. At the east end of the south aisle stands the tower, of which the spire rises to 180 ft. Petworth was brought in marriage to Charles, sixth Duke of Somerset, by Elizabeth, only surviving child and heir of Joceline (Percy), eleventh and last Earl of Northumberland. Their daughter Katharine married Sir William Wyndham, Bart., father of the first Earl of Egremont. The chapel at Petworth House (which Charles, Duke of Somerset, reconstructed) formed part of the old mansion occupied by the Percys.

A New Hotel in Piccadilly.

All the equipment and other effects of the Bath Hotel and the hotel and restaurant known as Walsingham House, will shortly be sold at auction. Since the relinquishment of a scheme promoted by an American syndicate to take the site for a large hotel, the directors of Carlton Hotel, Ltd., have agreed to pay 250,000*l.* for the lease of Walsingham House and the freehold of the Bath Hotel, with a view to the building of a residential hotel on the site. They estimate that the total outlay will amount to from 500,000*l.* to 600,000*l.*, whilst an opportunity would be afforded for the widening of Piccadilly on the south side, at the upper end of Arlington-street. The Bath Hotel, in which, at No. 155, Piccadilly, are the original White Horse Cellars, was so named, it seems, after William Pulteney, Earl of Bath, who lived in an adjacent house on the west side of Arlington-street, and, according to one account, had as his next-door neighbour Sir Robert Walpole, who, in 1742, removed to No. 5 on the opposite side. On the site of Nos. 23-24 in that street, and of Nos. 150-4, Piccadilly, was erected, in 1886-7, Walsingham House, after plans and designs by Mr. W. O. Milne, the ground landlord being Lord Walsingham. In pulling down No. 23, Arlington-street, was found a wall-painting executed in distemper, representing, in life-size, Hercules and Omphale in the grotto on Mount Tmolus, with a landscape in the background. The drawing-room of the adjoining house, which, as others maintain, was the early home of Horace Walpole, formed the scene of the second picture of Hogarth's "Marriage à la Mode," engraved in 1745. Sir Robert Walpole's first house in the street was rebuilt for him in 1729 by William Kent.

The Modern Gallery.

At the Modern Gallery in Bond-street is a collection of works in water-colour and pencil by a young artist, Mr. A. Romilly Fedden, which show unquestionable talent and originality, though there is a want of definite aim in them; the artist seems to be still in search of a style. His small colour sketches of town scenes and people seem prompted by the example of Mr. Melville of the Old Water-colour Society, whose figures are all made up of dots of strong colour; Mr. Fedden has caught the trick very well, but it is only a second-hand effect. His larger work of somewhat the same class, but with the figures more defined, "Sunlight and Shadow" (60), is however quite admirable, and not so imitative. Then he shows us a separate class of moonlight and night effects, treated with a technique quite different and rather à mannerism; some of these, however, are very effective—"Quimperlé, Moonlight" (30) especially. "A Breton Idyll" (65) is also a fine work, but here again we come upon reminiscences of Mauve. Mr. Fedden has a way of his own in the use of pencil, and his small pencil sketches of figures and heads are excellent. In short, for a young man's exhibition this is a collection full of interest and promise; only we recommend him to get to a definite aim in his art and keep to it.

The English Art Club.

The Exhibition of the New English Art Club at the Dudley Gallery contains some very clever unfinished pictures, one or two good finished ones, and a good many things that do not deserve the name of pictures at all. Mr. Brabazon invites us to regard some shapeless blots of colour as "Philæ," and Mr. Wilson Steer offers us some brown smudges to do duty as "A Glade." In some of the subjects which introduce architecture prominently the buildings are all crooked (see Nos. 15, 108, &c.)—that we suppose is a note in "New Art"; but Mr. George Thomson's two architectural interiors from Windlestone (29 and 36) are good pieces of work, definite but not too hard, and Miss Hogarth's "Uffizi Palace" (42) is good as a slight sketch. There are no figure subjects that present beauty—beauty is a worn-out pleasure, and a good number of them are hideously ugly; but among the finished paintings Mr. E. A. John's "Merikli" (111), a half-length of a woman, is a remarkably fine piece of colour, if only the face, and the way of painting it, were not so unattractive. Mr. Strang's group of three men under the title "The Statuette" (103) is also a powerful work, though it cannot be called more than a broad sketch. Among the landscapes there are two

beautiful small works by Mr. Mark Fisher (54, 67), a refreshing contrast to many other things in the gallery. Miss Fanner's large landscape, "Richmond Hill" (86) is a little disappointing; the artist seems to have succumbed a little to the influence of her surroundings, and has lost some of the brightness and movement which characterised her former exhibits. In Mr. Wilson Steer's "Upland Landscape" (59) the tree in the foreground stands out with great power. Mr. Lindner's "Evening Glow" (2) and "The Haybarge, Holland" (43) are bright and sunny (a rare quality in the landscapes in this exhibition), and Mr. Francis James's two flower studies (7 and 20) are fine in colour and freedom of design; but why call the second one "a study in orange"? It is surely a very scarlet "orange." Among others that pleased us are Mr. Muirhead's small landscape study, "The Shepherd" (62), and his "Woodland Landscape" (71), which has some of the quality of the best school of French landscape painting; Mr. Henry's "The Mill-pond" (107); Mr. Russell's "Richmond Castle, Yorkshire" (116), a fine bold sketch for a landscape, worth finishing; and Mr. Yates's picturesque bit of old buildings "At Dunmow, Essex" (133).

The Dutch Gallery.

At Mr. Van Wisseburgh's Gallery in Brook-street there is a collection of etchings and pencil and wash drawings by Herr M. Bauer. The etchings are the best portion of the collection; they are of rather large scale and mostly represent Oriental buildings with rather confused groups of figures. There is a fine bold style of execution and composition about them; "The Terrace" is perhaps the best, and is a very effective work. The style of the drawings we do not sympathise with; they are rather untidy and scrabbly large pencil drawings of architectural subjects (chiefly), with monochrome washes on them—a method of execution which does not make the best of architectural subjects; "Amiens Cathedral" for instance, is certainly not a success. There is a decided power, however, about the view of "The Kremlin"; and "Coronation Festival at Moscow," where a confused torrent of people, not very much defined, seems to be pouring down a broad exterior staircase, is striking and original in composition.

New Knighthoods.

Among the birthday honours is a knighthood for an eminent architect and one for an eminent contractor — Dr. Rowand Anderson, of Edinburgh, and Mr. J. Mowlem Burt. Contractors on a large scale have long been accustomed to be knighted, and even created baronets, but the recognition of architects as persons who may have some claim to official honours is almost a novelty. Better late than never. In this case the bestowal of the honour on a Scottish architect was evidently intended as a recognition of Scotland; an Irish and an English architect having been recently knighted, the remaining sister kingdom had a claim to be remembered.

Sanitary Officers.—The Local Government Board has sanctioned the appointment of the following Sanitary Inspectors: Mr. W. A. Perry in Camberwell, Messrs. R. J. Davis and J. A. H. Cooper in Lewisham, Miss E. Stewart in Southwark, Mr. T. D. Young in the City of London.

MAGAZINES AND REVIEWS.

The frontispiece to the *Art Journal* takes the rather unexpected form of an etching by Mr. Axel Haig which is nearly all landscape effect, and the building quite subordinate and only half-shown; it is a view of Balmoral, and is a fine work. Mr. Edward Dillon writes an article on the very interesting subject of "Turner's last Swiss Drawings," with some comparative illustrations of the same subjects treated in two different sketches. The subject is to be continued. An article by Mr. I. Langridge is devoted to the consideration and illustration of Mr. Frederic Shield's paintings in the little chapel off the Bayswater-road, familiar to many who have passed along the road, but which there seems to be some strange difficulty in getting access to, although it is understood that it was built as a kind of open refuge for weary souls. At all events we have never succeeded in finding it open. Mr. Hercules Read, the keeper of British and Mediæval Antiquities in the British Museum, contributes a profusely illustrated article on "The Waddesdon Bequest" to the British Museum, by Baron Ferdinand Rothschild, a remarkable collection of Renaissance works of art and jewellery, which seems still little known to the general public. The *Christmas Art Annual*, published in connexion with the *Art Journal*, is devoted to the life and works of Sir W. B. Richmond, the literary portion by Miss Helen Lascelles. The numerous illustrations give a remarkable idea of the versatility of power of this artist, including as they do portraits, landscapes, and architectural studies, as well as the figure pictures mostly of antique Greek subjects with which his name is most generally connected.

We presume this month's issue of the *Magazine of Art* represents the promised expansion of this excellent publication in regard to matter and manner, more especially in illustrations. It is certainly an admirable number. The new element in it consists to a considerable extent in the increased use of coloured illustrations. Thus, the frontispiece is a powerful and effective chromo-lithograph reproduction of one of Mr. Byam Shaw's pictures from Ecclesiastes—that of the rich man "whose wealth will not suffer him to sleep." There is an article on this set of productions by Mr. Shaw, which we think have been a little over-rated, though there are some powerful things among them, and we are glad to find here the explanation of the one entitled "For God shall bring every work into judgment," which is certainly not apparent on the face of the picture, nor do we even now see that there is any necessary connexion between the subject as described here, and the text. Mr. Val Prinsep commences a very clever contribution, which we are glad to see is to be continued, entitled "New Art and Old Masters—Then and Now: a Vision"; in which he imagines in a dream the old masters visiting modern galleries and talking with the modern artists. This fancy is made the medium for a good deal of good criticism, and the personifying of some of the ancient artists is very dramatically done. One can quite fancy Cellini's first remark on seeing Leighton's bronze of "The Sluggard"—"Mother of God! This is a fine casting! My Perseus was not more successful"; and he is rebuked by Michelangelo for being "ever too prone to admire mechanical skill." The whole article is a good idea and, so far, very well carried out. The editor contributes a discriminating article on Mr. C. Dana Gibson, "apostle of American beauty and humour." Architecture is recognised in an article on Mr. Collcutt's building, Lloyd's Registry. Among the coloured illustrations are four jewellery designs by the French artist René Lalique, who is certainly an original artist, but with a little too much of the trail of the "article de Paris" over his work; and there is a separate coloured plate, or rather, a red monochrome one, from one of Romney's numerous Lady Hamiltons. Altogether a most spirited and interesting number. We must say, however, that we do not altogether like the new cover, with its grey sculpture and architectural design on a black ground; in a decorative sense it is rather heavy in appearance.

The *Art Workers' Quarterly* goes on admirably; the present number is a very good one. The most important article is one by the Rev. Percy Dearmer on "The Altar and its Furniture." Among other things, Mr. Dearmer observes that the height of the altar being decided by practical reasons (the best height is about 3 ft. 3 in.), the dorsal ("dossal" it used to be called) should not be of such a height as to dwarf the altar and rob it of its importance, but that the altar may be emphasised by length, (10 ft. or 12 ft. being common in old instances) and by enclosing it on three sides, an ancient method of which a modern example is given in an illustration from St. Mary's, Primrose Hill. All this is in favour, it may be observed, of giving to the so-called altar the appearance it ought to have as being properly speaking the "Communion table," as it is called in the Prayer Book. The persistent use of the word "altar" by modern ecclesiologists it is of course useless to protest against. A large proportion of the illustrations in the number are made up from the prize designs of this year's National Art Competition, and a very good show they make. The text accompanying this consists largely of reprint of the examiners' reports; one of the interpolated comments is however very much to the point, viz.: that too many of the students are occupying themselves in surface-pattern designs which they are trying to dispose of to manufacturers; that many of these, however good as design in the abstract, are not what manufacturers want and are not technically suitable; and that students would be better occupied in giving at least part of their efforts to learning a craft thoroughly; "they will be more competent as designers if armed with a substantial knowledge of the possibilities of the material with which they are dealing." This is excellent advice.

It is difficult to select anything for special notice amid the curiously mixed pages of the *Artist*, in which, after a modern fashion, illustrations and writing are jumbled together in a manner which seems to have more reference to the attractive appearance of the page than to an attempt to follow out any subject fully. Among the portions that we can specify are the illustrations of bookbindings by Miss Maude Nathan. These are all in a good style and show forms of design specially suitable for leather and tooling. An article on the work of Mr. Norman Ault, an artist whose name we do not recollect, shows us as accompaniments a considerable number of exceedingly good black and white drawings.

The *Architectural Record* for October (which arrived too late for notice last month) contains a good survey of contemporary French sculpture, by M. Paul Vitry, an official of the Louvre Museum, who writes in a broad critical spirit, puts Rodin (thank goodness!) in his proper place, and appreciates fully the grandeur of M. Bartholomé's great work the "Monument aux Morts," in which, as he truly says, "the profoundest thought and the most touching sentiment to be met with in the whole range of modern art are expressed with such grandeur and such harmony." M. Vitry, while doing justice to the brilliant talent displayed in much very recent French sculpture, regrets the breaking away from the best traditions of breadth and repose in sculpture, in favour of an increased vitality and movement which are alien from the true spirit of the art, and tend to widen the breach between it and architecture. In short, this is an eminently well-considered and wise article. Another article is devoted to a criticism of the "flat-iron" building in New York, now well-known by illustrations; the article forming No. 2 of "Architectural Appreciations." We have nothing to find fault with in the criticism, except to ask, was such a building worth a long article at all? An English architect, Mr. G. A. T. Middleton, contributes an article on "English Farmsteads," the illustrations to which ought to interest American architects, being something so different from what they can find in their own country. But we hope there will be no attempt to imitate them; they will not bear transplanting. Mr. Edwards Gale, we presume an American, gives an article on the Erechtheion, with no new "views," but a good summary of its history and architectural character, with illustrations from photographs.

The November issue of the *Architectural Record* contains an account and an illustration of what is called "An Innovation in Architecture." This is in connexion with the New York Public Library, not yet commenced, but on the site of which one bay of the architectural design (a classical design with an engaged order) has now been erected full size, in imitation of the material to be ultimately used, in order to enable the architect to judge of the effect of the details. This certainly is an

innovation, and one which we fear it would be very difficult to have carried out generally, on account of the expense; but it is a splendid idea in itself, and we cannot but admire the thoroughness of the architect who took such a means of studying the effect of his design in advance. Professor Goodyear contributes a paper on the subject to which he seems to have devoted his life—the effort to prove that all deviations from the perpendicular and the rectangular found in ancient buildings were intentional, and not due either to bad foundations or careless setting out. In this paper he has got photographs of various buildings in Italy which are leaning slightly out of the perpendicular, and wishes to prove that they were all built thus deliberately and for reasons of effect. The leaning out of the columns in St. Mark's façade is now no longer to be regarded as due to settlement, but to architectural considerations. If Professor Goodyear included English mediæval buildings in his survey, we suppose he would tell us that the leaning over of Peterborough front was the deliberate intent of the builders. We should be sorry to appear to speak with any disrespect of so able a man, but it does seem to us that this amounts to a kind of architectural lunacy.

In the *Architektonische Rundschau* it is refreshing, amid the frequent eccentricities of modern German architecture, to find in Herr Hoffmann's Public Baths building in the Bärwaldstrasse in Berlin a really fine, solid, and dignified piece of work. This is a massive stone front of which two-thirds of the height consists of bold rusticated masonry and round-arched windows, terminated by a modillion cornice, immediately below which is a long row of small square mezzanine windows. Above this the wall surface changes to smooth ashlar work (or perhaps cement with stone dressings) with very boldly treated pedimented and rusticated windows inserted in it, the whole crowned by widely-projecting eaves on wooden brackets. It is about as bold and effective a piece of street architecture as could be seen. A sumptuous family funeral vault (*Grabmal*) at Hanover, designed by Professor Haupt of that city, though questionable in detail, is impressive in general design. The leading article in the number is occupied with "Deutsche Ornamentik: Neue Formen," and fearful stuff it is—like a succession of fireworks going off.

The *Berliner Architektur-Welt* has a considerable variety of interest in its illustrations. The exterior and interior of the Villa Löwenstein, by MM. Hauer and Vogt, of Berlin, illustrates a modern German city residence of the most dignified class; a school building by Herr Paul Hesse shows a sensible and severe brick front of suitable character, and there is a good style about the police building in Rixdorf (a suburb of Berlin), by Herr Timmermann, a brick building with plain stone dressings and a rusticated stone ground story; it has the merit of looking very like a police-service office. The number contains also some sculpture illustrations showing both good sculptural style and originality of idea, and some more or less interesting examples of decorative work, of which the best is a "Fensterlaibung," a word of which our German dictionary is innocent; "fenster-laden" we know, but what is "fensterlaibung?" It is a fine bold piece of design, in any case. Along with the *Architektur-Welt* is issued the second special number (*Sonderheft*) under the title *Berliner Kunst*. Here, unhappily, we are in the full swing of the "New Art" again, and can find little indeed with which we can sympathise; the best thing among the illustrations is a competition design for a bridge over the Rhine at Basle; this is a quiet and sensible design, of good character; we cannot say so much for the two separate designs for bridge piers (not for the same bridge); they are pretentious and straining after effect.

The *Antiquary* contains the first part of a learned and important article by the Rev. Thomas Barns on the "Limes Britannicus," an attempt to identify with finality the thirteen stations of the *Notitia*, and to trace out the course of the *Limes*. The "Ramblings of an Antiquar," (III.) conduct Mr. George Bailey in this instance to the ruined manor-house of Swarkeston, Derbyshire, of which we have a historical sketch, three coats of arms, and a drawing of a pretty Elizabethan pavilion which is still standing, and which it is suggested was a place from which ladies might view the sports on the green before it. The sketch is on a small scale, but shows a building which is interesting and unusual.

The *Quarterley Review* contains articles of considerable and varied interest, but none of them on subjects which it comes within our province to comment on.

Harper contains an article on "Surrey Downs," by Mr. Arthur Colton, which includes some remarks in regard to John Evelyn and his house, or what is left of it. The author fully appreciates Leith Hill and its wonderful view, though thinking (and we agree with him) that the boasted sight of "twelve counties" is not much to the purpose. Mr. Walter Hough, of the United States National Museum, contributes a short article on "Ancient Peoples of the Petrified Forest of Arizona." In the same number we meet the rather startling heading—"Puvis de Chavannes, Caricaturist." Who would have dreamed that this decorative artist of the solemn and severe style, whose pictures are without a trace of humour, was capable of making caricatures of a rather coarse and vulgar description? To do him justice, he attached no importance to them, and in sending them to a friend, M. Philippe Gille, he said, "it is my way of amusing myself"; adding "tear them up, burn them; they are yours." M. Gille preserved them, and some of them are here reproduced. He would have done better to burn them; they add nothing to Puvis de Chavannes; they are not even humorous.

Under "The Field of Art" *Scribner* gives a short account of American artistic pottery, of which there seem to be now several varieties connected with as many names, firms, and localities. As far as one can judge from the small photographs given, America is getting quite a pottery art of its own; as indeed we should have expected, though not much of it has been heard of in England as yet.

The *Pall Mall Magazine* contains a very interesting article by M. Bernard Secretan on "The New Pacific Cable," describing and illustrating the methods of laying out, picking up for faults, localising faults &c. "Boston, Ancient and Modern," with numerous small illustrations of the architecture of the city, is the subject of an article by the competent hand of Mr. Montgomery Schuyler. Architecture is also represented in another article in the same issue, by Mr. Hugh Philpott, on "Some Points of Interest in the New Westminster Cathedral." It is an article both enthusiastic in tone and well judged in its critical expressions.

Macmillan contains a kind of "rhapsody" on the Cathedral of St. Magnus at Kirkwall, worth reading for the picturesque manner in which it is written, and the vivid way in which the character and the peculiar glamour of the ancient cathedral and its stormy surroundings are conveyed to the reader's mind.

The *Essex Review* deals this quarter more with subjects of history than of archæology. There is however an article on the ancient silver hoard discovered at Colchester in July last, when the workmen engaged in excavations on the site of the London and County Bank in High-street discovered a leaden casket containing over 12,000 early English silver pieces. None are later than Henry III., a good many are a century earlier. Illustrations of two dozen of them are given. Speculation as to the original owners of this money, and the cause of its being secreted, has been indulged, but can only be very imaginative. The writer of the article in the *Essex Review*, however, has hit upon one possible explanation of the mystery:—

"It was a custom of King Edward I., and one he commenced in the very first year of his reign, to impose large levies upon the nation, and it appears from the Borough Records that a fifteenth was exacted from Colchester in that year, and again a further contribution three years later. The rolls actually contain most detailed particulars as to the manner in which these levies were computed, and it is particularly significant that throughout the assessments of the burgesses' chattels, ready money was conspicuous by its absence. Almost every entry relates entirely to goods, and one only of all those quoted in 'The History and Antiquities of Colchester,' mentions cash. The entry is as follows, and may be taken as typical of the others, except that the rest are innocent of any cash balance:—

'Wiliam the Miller had the day aforesaid in ready money one mark of silver. In his cupboard a silver buckle, pr. 9d.; one ring, pr. 1s.; in his granary one qr. wheat, pr. 4s.,' &c., &c.

Now surely the apparent impecuniousness of the burgesses, in spite of their pretty abundant possessions in kind, is a remarkably suspicious circumstance, and it is by no means unreasonable to imagine that possibly they were shrewd enough to conceal their coin so as to avoid the objectionable impost."

It seems rather hard that according to law, these coins should go to the Treasury, instead of remaining in a local museum; we share the hope, at all events, that after the reasonable demands of the British Museum have been satisfied, the remainder of the find may be returned to Colchester. The "Notes and Queries" include a curious little bit of information which has been communicated to the *Review* from two different contributors (both accounts are printed), about the oak screen in Thorpe-le-Soken Church, along which runs an inscription "This loft is the bachelers' made by ales," with some words of blessing (apparently) at the end. The explanation is that the screen was made with funds raised by the "bachelers" at a "church ale," "a carousal which was the precursor of the no less iniquitous modern church-bazaar."

The *Revue Générale* contains an article on "L'application de la Loi Italien sur la Réparation des Accidents du Travail." This is the Italian law of March 17, 1898, the result of about twenty years' inquiry and deliberation. The article, by M. Georges Eeckhout, we have not space to summarise here; but it will be found of interest by those who are specially studying the subject of compensation to workmen.

Knowledge contains a remarkable communication by Mr. B. W. Lane on "The Canals of Mars," which goes to show, experimentally, that this appearance may be produced by optical illusion, and has been produced thus in the case of Mars. We must refer the reader to the paper for the arguments and experiments. The editor of *Knowledge* seem to consider that the point deserves serious consideration. We are tempted to ask, on the basis of the experiments given, why then have not similar illusory "canals" been seen in the course of telescopic observation of the moon?

The *Church Builder* contains illustrations and descriptions of two fine recent churches, Christ Church, Lower Sydenham, of which Mr. Fellowes Prynne is the architect; and Stoke Damarel Church, designed by Mr. Caröe.

DISCOVERY OF REMAINS OF BERMONDSEY ABBEY.

In the course of recent excavations for the erection of working-class dwellings by the South-Eastern Railway Co., upon land belonging to the London County Council, have been dug up what are considered to be fragments of the foundations and lower courses of the chancel of the abbey church. Further excavation has brought to light pieces of, apparently, a large Perpendicular window and doorway, also of a hood-moulding and an arch of the Early English type, and similar fragments. Timbs, in his "Curiosities of London," cites a drawing in the Upcott Collection showing the monastery as rebuilt early in the reign of Edward III., and the cloisters and refectory in 1380. Katharine of Valois found sanctuary there after the death of her husband, Henry V., and there also died Elizabeth Woodville, widow of Edward IV. For the site itself we may direct attention to a ground-plot plan that was engraved and published by Robert Wilkinson on January 1, 1822, and is described as being from an original drawing taken in 1679—that is to say, nearly 140 years after Sir Thomas Pope had pulled down the church, together with most of the conventual buildings. On that plan "the ground-plot of the old abbey church" is hatched-in upon the sites of some buildings along the north side of Long-walk, on the north side of "the Base Court-yard" (afterwards Bermondsey-square), and parallel with the later Abbey-street. One of those buildings, which is detached, is lettered as "The Rev. W. Whitaker's Meeting House (he was an Ejected Minister, 1662)." The meeting-house is plotted in the south-eastern portion of the nave of the church, which measures, to the scale, 170 ft. in length, the chancel included, by 60 ft. in width at the west end. At the west end of Grange-walk is the site of the East Gatehouse opening into the Base Court yard, and to the south of it are "the Coney-grew" and "the Stable yard." Between Long-walk and the East Gatehouse stands "the Bakehouse," between which and Long-walk are plotted "where the Mansion House stood," and "the ery of the Mansion House," as on the east

side of the later square. That was the house, known as Bermondsey House, which Sir Thomas Pope built for himself out of the materials of the church, and which, with its gardens, orchards, pasture lands, ponds, and so on, covered about 20 acres. Of Pope's house there is an interesting water-colour drawing, made by T. H. Shepherd sixty years ago, in the Crace Collection, which shows the old stones in the walling. At the north-west angle of the square stood the North Gate, or Great Gatehouse, and just beyond it the West Gate, where is now Bermondsey New-road. In the Crace Collection is the original drawing of the former, by C. I. M. Whichello, of which Wilkinson published an engraving in September, 1820: on the northern side of the gatehouse he depicts the graveyard of St. Mary Magdalen Church. The gatehouse and some adjoining portions of the conventual buildings remained until 1806, when Abbey-street and most of the square were laid out. The Abbey of the Holy Saviour was originally a priory of Benedictine monks, brought in 1082 from Cluny, whom Aylwin Child endowed with some rents in the City of London. At the instance of Richard II., Pope Boniface in 1399 erected the priory into an abbey, which at one time was amongst the richest and most important in the kingdom. On July 8, 1541, the abbey site was granted to Sir Robert Southwell, Master of the Rolls, who on August 30 of that same year conveyed it in fee to Sir Thomas Pope, Treasurer of the Court of Augmentations, and his wife. Pope, it is true, pulled down the church, but he had saved St. Albans from destruction, and he devoted part of his gains to the building and endowment of Trinity College, Oxford. The late Dr. Rendle, of Southwark, says that Pope caused the Rood of Grace to be removed from the church to the common in Horselydown at the end of the present Crucifix-lane. It was destroyed by the populace, together with the Rood of Grace, from Boxley in Kent, after a sermon preached at Paul's Cross by the Bishop of Rochester on St. Matthew's Day, February 25, of that year.

THE ARCHITECTURAL ASSOCIATION.

An ordinary fortnightly meeting of this Association was held on Friday, last week, in the Meeting Room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. H. T. Hare, President, in the chair.

The minutes having been read and confirmed, and some nominations having been read, the following gentlemen were elected members of the Association:—Messrs. P. Luker, M. C. M. Leggett, T. A. Jaques, E. M. Ellis, B. E. Atkinson, jun., R. W. White, A. E. Brooker, H. Hutchinson, F. B. H. Carrell, W. Jones, H. T. Tovey, H. A. Aitken, J. S. Cable, F. C. Mears, J. H. Reynolds, J. Ewing, F. J. Matthews, E. L. Hampshire, E. F. C. Buckley, H. A. Fairhead, J. C. Bull, J. D. Winder, A. E. Richardson, V. Hooper, and S. L. C. Gilks.

Mr. W. Flockhart was, on the motion of the Chairman, also elected, by acclamation.

Mr. R. S. Balfour, hon. secretary, announced the following donation to the library:—Journal and Supplement of the Sanitary Institute for November, 1902, presented by Mr. Francis Hooper. A vote of thanks having been accorded to the donor,

It was announced that on November 26 a meeting of the Discussion Section will be held, when Mr. G. P. Bankhart will read a paper on "Decorative Plaster Work."

Proposed New Premises.

The Chairman then gave formal notice of a special general meeting to be held on Monday, November 24, at 7.30 p.m. to consider proposals which have been made by the Royal Architectural Museum and Westminster School of Art.* It would be in the minds of all of them that the question of new premises for the Association had been under consideration for a great number of years, and that for many years it had been referred to in the annual address of their President. It would also be in their minds that their immediate past-President, Mr. W. H. Seth-Smith, made a very determined effort to collect a sufficient fund to enable the Association to acquire or erect new premises. That fund had not up to the present time progressed so far as to justify them in the immediate hope of being able to build. However, on October 27 last, a communication was sent to the Association from the Royal Architectural Museum in Tufton-street, suggesting that their premises might possibly be handed over to the Association for their use. The suggestion had received a very large amount of anxious consideration by the Committee, and the result was that the following resolution had been passed:—

"Resolved, That the Committee of the Architectural Association, having considered the communication of October 27, 1902, made by the Special Committee of the Council of the Royal Architectural Museum and Westminster School of Art, unanimously and heartily resolves to accept the conditions suggested in this communication by the Council in transferring their premises to the Architectural Association, subject to confirmation by the body of members in general meeting."

That gave shortly the objects of the proposed meeting. A circular was being issued to members, calling the general meeting. The Council and subscribers of the Museum propose to transfer their premises in Tufton-street as they stand, together with the valuable collection of casts, to the Architectural Association upon certain conditions. The Association would be required to maintain the use of the Museum free to the public as hitherto; but in the administration the Association would have sole discretion. The original cost of the building was over 4,000*l.*, the new studios cost 3,000*l.*, and the collection of casts is estimated to be worth many thousands of pounds. The Association would be required to pay the contingent liabilities at the time of transfer, roughly estimated at 700*l.*, and in some way retain the name of the Royal Architectural Museum if His Majesty the King is willing to continue his patronage. The lease of the premises expires in 1926, and the lease of the land on which the new studios stand in 1976. The annual rent of the former is 80*l.* and the latter 60*l.* Should the members of the Association endorse the Committee's resolution, immediate steps will be taken to complete the transfer, and to give notice at Christmas to terminate the lease of 56, Great Marlborough-street, at Midsummer next, as another opportunity would not occur for seven years. The transfer being effected, steps would at once be taken to adapt the premises which are considered ample for the Association's present and prospective educational requirements. The Committee has given most careful consideration to the matter, and were strongly of opinion that the opportunity of acquiring these premises should not be lost. The Committee hoped that there would be a large attendance of members at the meeting, and that in the meantime careful consideration would be given to the project.

Roof Coverings.

Mr. F. C. Eden then read the following paper:—

I have to ask your pardon to-night for two things; firstly, for what I am going to leave out, and secondly, for what I am going to leave in. I am obliged to omit much of what I might otherwise have said—as I once heard a preacher lament after an hour of violent exertion—because each of the materials with which we have to deal would supply matter for a paper to itself; and, on the other hand, some of the suggestions which I offer with great diffidence may be at variance not only with the well-thumbed rules of the text-books*, but with the practice of those who know much more about these things than I do.

It has often been a surprise to me to notice in how many modern buildings of something more than a pretence to architecture, the roof seems to have been left almost to chance. And yet the roof exerts an influence which, though often unperceived, affects the mind so powerfully because, far more than any peculiarities of detail, it impresses the building with the indefinable stamp of character and of style. Surely it is lost labour to be, like Wren, "as nice as the pedants," about mouldings, without, as he did, devoting equal care to the covering of the roof. Just as the most beautiful stone which nature has to offer may be spoilt by stupid and mechanical tooling, or still more so by polishing, as in the case of granite; so the form of a roof may be as elegant as possible, but if the covering material be unintelligently made or mechanically applied, the roof must be ugly. Architectural beauty is, indeed, but skin deep.

Goethe's maxim, "Take care of the beautiful, for the useful can take care of itself," contains that good sense which usually lurks at the bottom of a paradox; and is especially true if we apply it to that most utilitarian part of a building, the roof. Beautiful materials make good roofs; and ugly materials, without exception so far as I know, prove in the long run to be bad materials.

In reply to the question, What makes a roof beautiful, or the reverse? I suppose the answer most commonly given would be form and colour. This is only partly true. The really important quality, in my judgment, is texture. A roof may be poor and neutral in colour, as are many of the old Cornish roofs of Delabole slate (though, indeed, if she find the surface sympathetic Nature usually takes care of the colouring), but with good texture the simplest roof becomes interesting and paintable.

The true reason why Westmoreland slates make a better roof than Welsh is not because they are green and the others blue, but because they cannot be split so thin or be so mechanically dressed. There is a thin green slate in the market which makes as ugly a roof as ever emanated from Portmadoc.

A feeling for texture is every whit as useful to the architect as an eye for colour. In the case of every material with which he has to deal he must make a choice between those true and false methods of workmanship, on which texture of surface mainly depends. In masonry he has to choose between mechanical or sham tooling, or dragged face on the one hand, and the traditional tooling peculiar to each different kind of stone on the other; in brickwork, between the thick brick with narrow joints (specified four courses to the foot), and the thin brick with wide joints; in structural timbers between the markings of the circular saw, and those of the adze; in carved work between the tale of the tool, and the trail of the glasspaper; in plaster, between the artificial, screeded level surface with sharp arrises, and the natural trowelled face with angles soft and rounded; in lead between milled and cast; in window glass between the slight convexity of crown—so valuable in external effect for its brilliancy and changefulness—and the tinny mottling of sheet, or the flatness and blackness of plate; in metalwork between the marks of the hammer, and the neatness begotten of the scratch-brush and the file. In every case he has to choose between texture and the absence or pretence of it; between a monotonous surface and an interesting one. Let us, then, see how this choice may be exercised in the matter of roofing.

In theory, I suppose, all are agreed as to the rightness of using local materials. It is in practice that the shoe pinches, since cheapness of transit has put so many and great temptations from Bangor and Broseley in our way. But, stale though the exhortation be, may I urge that, however monumental buildings and buildings in large towns be roofed, in the country, and in dealing with cottages, and other small buildings, it is of the utmost importance to the landskip that the natural material of the country-side should be used, rather than material imported from a distance.

One of the greatest charms of old towns and villages lies in the unity of the roofs—all of one material and all of one pitch. Here slates from Westmoreland do not jostle tiles from Broseley; here are no domes of the South to swear with the steep roofs of the North; nor are steep roofs seen side by side with flat ones; in fact, here are none of those incongruities which are popularly supposed to produce picturesqueness. This is simply the local material asserting itself, together with that feeling for unity in the roofs of a district which the builders of old always exhibited.

Owing to the large expanse of a single material which most roofs in this country show—often in far larger unbroken surfaces than the walls of the buildings they cover—the material with which they are covered has a greater æsthetic importance, especially in distant views, than the material of the walls. The smaller the building the truer this is felt to be, till in a cottage the roof becomes the feature on which the beauty of the whole depends.

* See page 444 this week.

* For instance: "The Welsh slates. . . . split finer and to a more uniform thickness, and are bluer in colour than the others; those from Westmoreland are rougher, thicker, and consequently inferior, and of a dull greenish tint."—Seddon, "Builder's Work," 122.

"In good slating, the vertical joints of the alternate courses should range in straight lines from ridge to eaves, and the tails of the slates should be in perfectly straight horizontal lines."—"Building Construction," Rivington's. I. 1901 Ed. 209.

Let us then suppose, not to be too ambitious, that a cottage is being built in a tile district. Some might prefer (for reasons which will appear) laying the tiles on riven oak laths rather than on boards or battens; bedding them, not in mortar, which either drops out or holds the wet like a sponge, but in hay, moss, reeds, dried marsh-grass, or whatever may be the available material and traditional usage of the district. The problem—almost an insoluble one—is how to admit plenty of air between the tiles while excluding fine, powdery snow. "Nobody," says Mr. R. Nevill, "who, in taking off old roofs, has ever seen the horrid mess to which the hay in a few years becomes reduced, would ever think of adopting so useless and pernicious a method." Felt, he goes on to add, is no better, and after some years becomes worse than useless. A draughty cock-loft makes a dry roof. But if the aspect be much exposed, the under-side of the tiles can be torched, this method being, perhaps, less open to objection than bedding in mortar. Fifty degrees is a suitable pitch. What builders call the square pitch, or pitch of 45 deg., hardly ever looks right, whatever the roofs be covered with.

If the roof be of the collared rafter form, the timbers might be of larger scantling than the usual 4 in. by 2 in., but spaced further apart, say, 1 ft. 6 in. to 2 ft. from centre to centre, the intervals need not be equal. The timbers being large enough to be framed instead of spiked together, a stronger roof is obtained, while the slight sag of the laths between the rafters produces that ribbed appearance which we admire in roofs that have kept out the weather for generations, and which is the result, not so much of age, as of this method of construction. Another advantage incident to the use of laths is that, owing to their irregularity, it is impossible to get a straight edge to the courses. The examination of ancient examples makes it clear that effects of this kind were studied, and not accidental. For instance, in repairing the fifteenth-century roof of Ockwells Manor—a house evidently designed with much thought and skill—it was found that the purlins were placed at such a level that the rafters did not touch them by about 1 in. until they were loaded, and when the roof was stripped they sprang back to the straight again. By this simple means the position of the principals is marked on the outside of the roof by a gentle undulation, not an untruthful method of construction, and one which serves to give delicate relief to the roof planes without destroying their breadth and simplicity, relief which we seek in vain with gablets, dormers, bands of glazed tiles and what not, whereas it is just this soft play of light and shade upon an otherwise unbroken surface which gives so much quiet charm and character to old-world roofs.

Coming to the tiles themselves, what are the characteristics of a good plain tile? What are we to require of the tile-maker? "A good tile," says Mr. J. P. Allen, "should be hard, well burnt, well shaped, non-absorbent, of good colour, and with a glazed or vitrified face to prevent vegetation" ("Practical Building Construction," p. 209.) The section on tiles by Professor Henry Adams in the work called "Specification," contains this specification clause:—"Cover the roofs with first quality hard-burnt, pressed, dark, Broseley tiles of approved manufacture, with nibs, but not nail holes, laid to a 4 in. gauge, and each tile bedded in lime and hair mortar" (p. 177). Well, I think it safer to have Nature on one's side rather than attempt to defy her. All she can do with "pressed dark Broseley tiles of approved manufacture," or indeed with any thin, flat, vitrified tiles, is to scale them, crack them, blacken them, and finally blow them off the roof. But a rough, hand-made, sanded tile, she will not only waterproof, if that be needed, but will paint it with her most delicate greys and brightest orange. Firstly, then, no Broseley or other machine-made tile can possibly, owing to its flatness, uniformity, and unsympathetic surface, produce a roof with any character—a roof such as an artist would care to paint. A good tile will be hand made. Then as to size. Some old ones are as narrow as 4 in.; 6 in. is a usual width, but I think 5 in. to 5½ in. looks better. With hand-made tiles there is no difficulty, if the order is given in time, in procuring them of any specified width, the mould, from which many thousand tiles are made, costing about 2s. 6d. The length is usually about 10½ in., but the thickness is the really important dimension, and nothing under a full ½ in. should be used; ⅝ in. is better.

Next as to shape. The set of a tile, or curve in the direction of its length, is given by placing it when partially dried on a shaped bed of sand; but the buckling, or curve across its width, is the result of hard burning. A buckled tile means a well-burnt tile, and should be by no means rejected. Buckled tiles are especially useful for wall tiling, and when the sun strikes obliquely across them the effect is charming.

Texture of the surface of each individual tile is produced by plentiful sanding, and by not scraping out the mould too often in the effort to get a neat tile, as near as possible to a machine-made one. The nail holes are better punched by hand, and not by any mechanical process, as is sometimes done, even in hand-made tiles. The slight inequality in the level of the holes causes the tile to hang unevenly—a little matter, but an important one, as when each course looks as though laid to a steel straightedge the effect is unpleasant. The colour of a tile depends on the amount of iron in the sand, and on its being burnt with a clean, fierce flame such as wood gives. With wood the temperature can be more easily varied than when coal is used, and it is possible to obtain a greater intensity of heat towards the end of the burning, so as to bring about that incipient vitrification of the middle layer of the tile without affecting its surface, which makes it impervious to moisture.

Needless to say, tiles should not be "selected for uniformity of colour," as some specifications require. It is only by slight varieties of colouring in the separate tiles that the colour of the roof as a whole becomes beautiful.

In a good roof there are many little practical dodges to defeat the weather which all help to give interest and variety to its surface. For instance, where the tiles abut against vertical surfaces, as chimneys, gable copings, party walls, and the like, they are given a slight upward tilt sideways to throw the water away from a naturally weak place. This was the case in all the old roofs at Gray's Inn until they were relaid in recent years, when they were all smoothed out with admirable skill, so that the rain has every inducement to soak into the mortar fillets.

A similar practice is that of laying a tile flat along the verges against the end rafter. This gives a side tilt, which prevents rainwater trickling down the gable face. This specially-made tile, known as "tile and a half," should be avoided, as the effect of a very broad tile in every other course is unpleasant. A good tiler can work the verges perfectly well without it by a little cutting.

For ridges nothing is better than the plain half-round. It has a sanded face, like the common tiles, and is thicker—say, about 1 in.—and is bedded in hair mortar. A thickish projecting fillet of white mortar over each joint has an agreeable effect. I have not noticed it in this country, but it is the usual practice in the North of France. Special end ridge tiles do not look so well as a bottle end or pebble in mortar in an ordinary ridge tile.

For the valleys it is not always necessary to use valley tiles or lead. A pleasant effect is produced by sweeping the tiles round. This involves a certain amount of cutting, and some packing on the back of the valley rafters, and, unless you are fortunate enough to have an unusually skilled and old-fashioned tiler, an enormous amount of personal supervision. But I think the result is worth the trouble.

It is pleasant to think of a roof of tiles or slates as a kind of coarse drapery or tarpaulin, which roughly takes the shape of the framework over which it is thrown, softening all harshness of outline with the gentle undulations into which it naturally falls. The great enemy to be overcome in roof design is hardness. In the typical modern roof each plane looks as if cut out in one piece from some stiff and flat material, like the cardboard roofs of a badly-made model, and makes hard mathematical angles at its intersection with the adjoining planes. For all their fantastical extravagance the roofs of the Low Counties teach us this lesson—that slates, if small enough, can be made to cover any form you please: domes, bulbs, spheres, to say nothing of hips and valleys, like the scales of a fish; so that a complicated roof can be designed without a single mitred or mechanical angle.

It may or may not be true that you can always tell an Adam house by the eaves, but any how, they are not a bad test of a well-designed house; for the most emphatic point in a small building is the eaves. They occur at the wall-head, to which the eye naturally travels, just where there is the most marked change of plane and of material, accompanied by a strong line of shadow. So it is easy to see that by unskilful treatment of this part the effect of an otherwise good roof may be completely marred. When the sprocket-pieces or rafter ends show, their management demands great care. Nothing can be worse than the effect of a row of narrow sprockets laid on edge, all of exactly the same scantling, and all spaced at exactly the same interval—possibly all varnished into the bargain. A better way is to lay the sprockets flat, whatever you do with the rafters, to space them unequally, and to vary their sizes. In small houses, where the eaves have much projection, the soffits can be boarded, lathed and plastered, or treated as a cove. With slight overhang, a cornice of wood or stone may be comfortably tucked under the projecting tiles or slates.

All eaves' gutters are something of a disfigurement. Substitute for the pleasing irregularities of the natural eaves' line, a line just as hard as cast iron can make it; in other words, fix a half-round gutter, and not only eaves, but, to a great extent, elevation also will be spoilt. Where it is necessary to collect the rain water, or where walls are thin, it is better to use wooden spouting. It may be square or V-shaped in section, or hollowed out of the solid, but it must be kept small, or the effect is clumsy. The downpipes in this case will be of wood, with tapering heads, and will stand clear of the wall, to which they are attached by long holdfasts.

When a parapet or cornice gutter is out of the question, nothing looks so satisfactory as dripping eaves. It is the rule where thatch is used, and with the majority of old roofs, though it must be acknowledged that with 9-in. walls the result would probably not justify a reversion to methods that are suitable only to good building. At the same time, it is not likely that dripping eaves have ever done as much damage in three centuries as neglected guttering and downpipes, choked with their own rust, and discharging the collected water of successive seasons into the walls, have done in a single generation.

Of slate roofs, I think those are prettiest where the slates are very small and thick, and the graduation not too obvious. Old Cornish roofs are of this type: they sometimes have two or three courses of very large slates at the eaves.

What are known as stone slates, such as occur in Oxfordshire and Gloucestershire, make, perhaps, the most beautiful roof of any. Of the heavy Horsham slates, as used upon Sussex houses, Mr. Dawber writes:—"The slates are very large at the eaves and diminish in the usual manner to the ridge; but they lack the finish and texture of the small Cotswold stone slates, and are more nearly allied to the heavy roofs of Lancashire and Yorkshire. We notice that directly these slates are used the pitch of the roof is flattened, for these old builders, so sound in their practical knowledge, at once recognised the impossibility of covering with heavy stone slates, steeply sloping sides where all the drag and strain would be on the pegs and laths, and to this can doubtless be attributed the reason of our constantly finding these roofs cemented and stopped with mortar, for their flat pitch has the disadvantage of not always keeping the wet out without extraneous aid."—"Old Cottages," p. 21.

In Gloucestershire, I believe, the roofs are galletted as well as torched—that is to say, after the slates are laid they are gone over carefully on the underside, and small slips of slate are inserted in the larger crevices which arise from the unevenness of the slates, before the torching is proceeded with.

When the roof is of steep pitch and shows conspicuously against the sky, lead is not suitable, except to monumental and lofty buildings, in which the proportion of visible roof to wall surface is not large. A cottage roof, with eaves 10 ft. or less from the ground, would not be a pleasing object if covered with lead. When the roof is flattish and but little seen, or entirely hidden by parapets, as in many late village churches, lead is the obvious material to use. Again, it is especially suitable to those small and highly decorated roofs, such as often surmounted octagonal turrets of the Tudor period. One or two such roofs of tabernacle work covered with lead still survive at Hampton Court. These were doubtless originally brightly illuminated and gilded. On Barnard's Inn hall

is a good louvre in turret form covered with lead. One of the most interesting examples of this kind of work that I know of is the old belfry at Calais, which is well worth missing a train to see.

As with other kinds of roof, so with lead, there are several devices in the laying invented for purely practical reasons, but which lend æsthetic effect and interest. For instance, in many old churches, including Exeter Cathedral, the sheets are not laid parallel to the gable copings, but strike into them at an angle. Then, too, the boarding under the lead in mediæval roofs was not close laid, but with gaps of about 2 in. between each board. The motive of both these devices was, by increasing the friction, to keep the lead from creeping; and each gives some interest to an otherwise mechanical surface. The boarding in old roofs is almost invariably oak; with modern imperfectly seasoned wood chemical action is set up and the lead perishes; but if the boarding be thin, say ½ in., and water-seasoned, I believe it is safe to use oak: however, no doubt desilvered lead is more easily acted upon by acidulated vapours than the lead which was used before 1840, when the desilvering process came into use. In modern roofs the rolls are often too big, owing to the use of a wooden core. A welt is better, except in flats, where there is likely to be much walking about, and the wooden roll is a necessity.

There is no practical reason why the sheets should all be of equal width, and a very good æsthetic reason why they should not be. I do not say that they should vary to the extent noticeable in old roofs where there has been much patching, but just enough to destroy the mathematical accuracy which teases the eye.

In old English roofs there is no ridge roll, but the sheets are lapped over several feet at the top; and I believe the ornamental ridge was rare. There is the well-known exception at Exeter, where the ridge of the cathedral has a simple cresting of fleurs-de-lys. Old prints of Holyrood show a beautiful ridge of crowned roses and thistles; but here, no doubt, French influence was at work.

On church roofs one may often see the dates at which repairs were executed accompanied by the churchwarden's initials. These are cast in the sheet, and some of them, as at Minster in Thanet, are elaborate and interesting. There is some suggestion for ornamentation in this. A simple powdering of symbolic or heraldic device, gilt, might be worth attempting. The old flèche on King's College Chapel, Aberdeen, is decorated after this fashion, with monograms, lily-pots, thistles, and crowns. The roof of the cathedral at Troyes is said to have been diapered with golden flames. But it is easy to overdo these things, and I think some of the elaborately tinned and painted French roofs of which one reads, must have been rather overdone.

Gilding is as a rule safe enough. In the East domes are often gilt all over. In Western surroundings the effect might be unpleasant, but parcel gilding, as on the dome of the Invalides, is most valuable. I should like to see the ribs on the dome of St. Paul's so treated. The effect would not be in the least barbaric, but refined, owing to the delicate effects of the curvature of converging ribs which would be brought into relief by the gold.

The lead used should be cast, not milled. "It is almost useless," says Mr. Lethaby, "trying to put interesting workmanship into dull and poor materials. It must be allowed that modern sheet lead has a poor, mean, crushed mill-board look, and its wretched colour puts it quite out of court as anything but a mere makeshift. Cast lead, on the contrary, has a beautiful surface, it is cast with the greatest ease, with the most simple of appliances, and does not blacken by exposure to the air as milled lead does. . . . In gutters and flats cast lead should be used, if for practical reasons alone. . . . It is said that milled lead was introduced into England about 1670. The plumbers of the time opposed its use and said it could not be durable. The Milling Company replied by offering to keep milled lead of 7-lbs. a foot in repair for forty years for an insurance of ¼ per cent. That, to me, seems saying very little for the material; it would have said little in the Middle Ages at least. Then the forty years' view of things had not been invented" ("Journal of the Society of Arts," xlv. 456).

The greater number of lead roofed buildings have parapets or cornice gutters, but in many old churches there is no gutter, but the lead hangs easily over the eaves like a flounce, which gives a curiously forlorn look, not without charm. It is just this gentle dressing of the lead which is so appropriate. Modern plumbers like to dress lead far too hard, especially where, as over cornices, they have a fillet to dress it to. The result is that the drip is spoilt and the water runs back over the members of the cornice and down the wall.

Thatchers must be a stubborn race, for they have preserved the traditions of their craft in spite of modern improvements; and, though the best materials are not now available, reeds being no longer grown for the purpose, and wheat straw being too much broken by threshing machinery, their work seems to be as well done as ever. Neatness, which is the bane of slate and tile roofs, is most appropriate to thatch. The more it resembles well-combed fur, and the less it suggests a heap of sodden refuse the better.

The characteristic beauty of thatch is the grace and ease with which it undulates over hips and dormers, and projections of every kind, combined with the curious sense of snugness which it conveys. No eaves gutters are used, and no flashings are necessary against stacks or gable copings. If the walls are plastered a coating of tar about 1 ft. 6 in. high along the base is a sufficient protection against damp.

The thatchers' trade is slowly dying out. Between the years 1851 and 1891 their numbers declined from 6,000 to 3,000; and it is to be anticipated that they will not be able much longer to resist the inroads of improvement and the superior attractions of corrugated iron.

Mr. H. D. Searles-Wood, in proposing a vote of thanks to Mr. Eden for his paper, said he was too great a Philistine to agree with all Mr. Eden had said. He had, unfortunately, rather too much personal experience of what some of Mr. Eden's suggestions resulted in. He happened to have a reversionary interest in some charming property in Kent, where could be found the features dealt with by Mr. Eden: oak timbers, hand-made tiles, &c. The cottages were most picturesque, but their picturesqueness was all they were worth, for they could not be occupied, but they were often sketched or painted. Consequently, he was rather out of sympathy with Mr. Eden's point of view. Some of the points referred to were interesting, but he would leave some one more in sympathy with Mr. Eden to discuss them.

Mr. M. B. Adams seconded the vote of thanks. He said he was somewhat in sympathy with Mr. Eden's opinions, but he realised with Mr. Searles-Wood that there were more practical difficulties to be dealt with. That a building should not look mechanical was evidently one of the first points an architect should attend to, but they had to do many things in the ordinary practice of everyday life which they would not do if they were masters of the situation, and the suggestions Mr. Eden had made were not altogether practical. One of the greatest and most annoying difficulties that an architect had to deal with was the local by-laws, which on every hand imposed restrictions which were extremely irritating. If an architect attempted to build a house or cottage without, for instance, any eaves-gutter, the district council would not pass the plans. The other day when he was building a small workshop in his garden for his boy—it was an unpretentious building, and he did not intend to have any eaves-gutter at all—he was asked what he was going to do with the water. He was compelled to construct the building in fireproof material, and so he designed it to be built in iron, to be covered in uralite (which he thought was an extremely useful material). He knew the local board could not object to this construction, but they sent his plans back and asked him what he was going to do with the water. He got over the difficulty by saying he was going to collect it in a tub. As an instance of the obstructiveness of the by-laws he might mention the following facts: he built a house a year or two ago in a country district of Surrey where the Local Authority insisted upon him taking the waste of one sink with a 4 in. pipe about 200 ft. right round the house in order to comply with the by-laws which stated that nothing like a catch-pit must be within 60 ft. of a building. Many of the matters suggested in Mr. Eden's paper they would not, in ordinary practice, be able to do. An architect must be practical above all things, and although he was not prepared to say that most of the suggestions made by Mr. Eden were not practical, he must say, after some years of experience, that they would be extremely difficult to put into effect.

Mr. Henry Lovegrove, in supporting the vote of thanks, said he quite agreed as to the difficulties to be faced in regard to the local by-laws, and he could only hope that architects would do all they could to come under the simpler London Building Act. He disagreed with almost all Mr. Eden's conclusions, and it appeared to him that architects did not design merely to make buildings picturesque, or to afford instruction for young artists. No one admired more than he did picturesque cottages, with pretty roofs and so on, but architects had to satisfy their clients in other things as well. As to what Mr. Eden said about sprockets of varying thickness of different spacing eaves, could any one imagine what a client, or district council, or any one else, would say to things being done that way? A roof should be picturesque, but he sometimes feared, judging from the style of architecture now so prevalent, that the roof would soon be more or less hidden altogether. At a certain period of the last century, roofs, as they knew, were hidden behind an enormous parapet. A roof gave great character to a building especially a small one. The Kent and Surrey cottages were extremely picturesque, because they show, comparatively, a large mass of roof, covered with hand-made tiles adorned by nature, giving an effect which could rarely be obtained by slate roofs. He was sorry the paper had not dealt more with the practical details of roof covering, because a roof in every country was of great importance. It must strike any one who visited Holland how extremely careful the people were with their roofs, and how they tried in every way to make good roofs. Some of the old Dutch farm buildings with their projecting eaves were very picturesque; sometimes, for the sake of protection from heavy rains, hay and corn ricks were covered with a movable roof drawn up and down by pulleys. Swiss roofs had large projecting eaves and verges, and for the same reason. As to slates, he agreed with what Mr. Eden had said. Some slates seemed almost like notepaper, so thin were they. At a recently-erected London County Council Fire Brigade station some very thick Westmoreland slates were used by the Works Department, but he was afraid that on some of the frail buildings that were erected, it would not be possible to use these slates, for they were very heavy, though they were the best kind of slates to use. Slates, generally, did not change colour—ordinary Bangor slates did not—but hand-made tiles did, and generally looked very picturesque. He liked Broseley tiles, and was getting to like dark purple brindled Broseley, but they were a little brittle. He had observed that in modern buildings roofed with tiles there had been a great many subsequent repairs to the roof, and it seemed to him that tile roofs did not last so long as slate roofs. There were a great many so-called patent tiles about, of which he disliked the Broomhall, which seemed to destroy the scale of a building and did not last—in fact, they were not durable, and could be scraped with a knife. He was rather sorry that in the twentieth century they should be discussing thatched roofs. They made very warm roofs but they harboured a lot of things which ought not to be there. Besides, there was great danger from fire from thatched-roofed buildings when built close together. Nor was a thatched roof a good roof for protection from the weather, for there were no flashings in such a roof. He had noticed that the practice was being done away with of providing a very ornate ridge, and he believed that a plain ridge was a good deal better. The ornaments broke off sometimes, and produced a peculiar and not pleasing effect. The plain ridge was more pleasing, with a figure at the end, if they wished. A dropping eaves would look very well if we had no rain, but as we do have rain he liked to see an eaves gutter. He did not admire the sunk gutter which was once used in conjunction with the dropping eaves. He thought milled lead was a useful material, cast lead being but little used. Not much had been said about zinc, which was a material much used and much abused. It was not of much use unless laid on good boarding and felt. In some districts (in Gloucestershire, for instance) the roofs and walls of the buildings seemed to be too much

of the same colour. The 45 deg. pitch gave an extremely ugly roof, and he thought that in this climate we should never go below it; in fact, a steeper roof was much better for dwelling-houses and public buildings.

Mr. R. H. Weymouth said they ought to thank Mr. Eden for the literary merit of his paper and the general interest he had sustained in the paper. He thought they should specially observe the point of view from which Mr. Eden looked at this subject of roofs, *i.e.*, the great personal interest an architect must take in tiles and slates and all the minutiæ of the subject. There was a great difference between the infinite pains in the erection of a building on Mr. Eden's method and selecting materials while sitting in an office with a specification-book by your side. He did not think Mr. Eden had referred to the old system of doing this work merely for archæological reasons, or with a desire to put in a plea for doing the work in the cheapest way possible. It had been said that we have to build cheaply, but that did not apply to all buildings; but effective buildings could be produced on the lines laid down by Mr. Eden if we knew how to spend money and time; and in recalling to us the methods of our forefathers, Mr. Eden had done good service, and in the sincere way in which he had treated the subject he had, perhaps, made some of them think that the present rather slap-dash way of specifying a roof was not the best, and that they had better take a little more pains and more personal interest in their work—in the laying and using of tiles, for instance—the same interest, in fact, that they took in preparing their drawings for the client to see. The paper fitted in very well with the last paper read before the Discussion Section—a paper by Mr. Cautley on Farm buildings, in which the author went into all the minutiæ of farm buildings as erected in the eastern counties, and the two papers made one feel that there were young and able men who were not ashamed to go back to the old ways of doing things. It did not follow that in doing so they were degenerating—it might be that those old lines were better than modern ones. He agreed with Mr. Eden that as far as possible they should use the materials of the locality where they built. Materials had to be imported sometimes, but in the main they were unsuited to the neighbourhood into which they were introduced. In Westmoreland one liked to see slate roofing and in Kent tile-roofing; when things were reversed there was a certain inharmoniousness about the result. Mr. Eden might have said a little more as to the grouping of roofs and the way they run into each other. As to thatch, it was not, as everyone knew, durable, but country folks who slept under it winter and summer had many good words to say for it.

Mr. Louis Ambler said he agreed with what Mr. Weymouth had said, *i.e.*, that a paper such as they had just heard was useful in bringing back old methods of covering roofs, compared with which the modern methods were inferior in results as to appearance. Hard-baked Broseley tiles were certainly unsatisfactory compared with sand-faced, and vitrified tiles were an abomination. As to slates, Mr. Eden had said it was a question of colour and texture—perhaps it was more of texture. He (the speaker) was very much in favour of regarding colour as of as much importance as texture. He did not think those purple-grey slates ever looked well, particularly when they were used in connexion with "crimson" brick walls, as was often done. As to thin green slates, it was not only the thinness that was objectionable, but their colour. They were green at first, and then (he had some buildings in mind which had been up a few years) they got a mottled appearance like dried peas—anything but green; grey or drab, perhaps. Even when green Westmoreland slates were specified, it was not always easy to get the colour ordered. He had had difficulty in getting the Buttermere slates equal to the sample selected; the bulk supplied were often of a darker and greyer shade, much of the green tint being lost. Mr. Eden had not referred to copper as a roof covering. Copper, particularly in towns, was an excellent roof covering, though it was very expensive, and the wonderful green colour it took on was in many cases most beautiful. In the country it was not so, for the green of copper was a bluish tint which did not harmonise with foliage; but for use in towns it was an excellent material if expense had not to be greatly considered.

The Chairman, in putting the vote of thanks to the meeting, said Mr. Eden's interesting paper had given rise to great diversity of opinion, and there appeared to be a little confusion in the minds of some of the speakers, who had not quite realised what Mr. Eden had in mind. Apparently Mr. Eden had been thinking of roof coverings to cottages and country houses and buildings of that kind rather than of buildings in towns, and a great many people would sympathise with Mr. Eden's feeling that a building, to look really well after the lapse of time, should be susceptible to the influence of the weather, and should show that a certain amount of time had passed over it, and had toned down its irregularities and crudenesses of colour. No doubt to ensure that they must have materials which were more or less soft and absorbent—Rivingtone and other authorities said that bricks should be hard and non-absorbent—apparently the ideal to look for was cast-iron. It was, in his opinion, a most unfortunate thing that all the text books and all the authorities which were consulted by the young student were prepared from that point of view. Speaking from his own experience, when he was a student he read Rivingtone most religiously, and used to believe that materials ought always to be hard. He also used to think, on the same authority, that a wall should be built of solid stone and not backed with brick, and he had to unlearn many things like that; and there must be similar cases of young men who learnt such injurious stuff. He thought there was great need of a text book which should be a really reliable authority, and which should guide students in the right way. It was absolutely false to say that a hard material was necessarily more durable than a soft one. He knew cases where the hardest pressed red bricks flaked after a few years, whereas in London there were cases of soft rubbers which had been built 200 or 300 years ago which were as good as when put up. As to the uses of tiles, Mr. Eden had not told them what he considered to be the best means of treating a roof where there were rooms in it, close up to the rafters. Mr. Eden had told them that chopped hay and that sort of thing was pernicious, and had said that felt was not much better, but he did not say what he considered to be the best way of treating the roof in that case. A method he (the Chairman) had adopted and found fairly successful was to put mortar underneath the tiles about 1 in. thick, with an ordinary plasterer's lath between each tile lath. That made a fairly good roof, but it was open to objection, for he had noticed that in some cases the frost had got hold of some of the tiles and split them, because they were too tightly held in position, but as far as he knew, that was the best way to treat a roof of that sort. Turning valleys, instead of lead valleys, or purpose-made valleys, was an excellent method if properly done, but it required a good deal of skill to do it properly. The appearance was good, for the angular line in the roof was lost and a soft effect of one surface flowing into another was produced which was very pleasing. It was done in nearly all cases of stone-slated roofs, and the stone slaters of Northamptonshire still carried out the work in that way in a good many cases. As to wood gutters and down pipes, he did not agree with Mr. Eden, for he did not think a cast-iron gutter supported on wrought-iron brackets was offensive, but it wanted doing with care. In a great many cases one saw that treatment on a roof with an enormous fascia projecting below the gutter, and, of course, that was objectionable; but when carefully done the iron gutter was not bad. He thought it would be undesirable to omit gutters entirely. As to the weight of stone slates, and the weight of very thick tiles necessitating an increase in the size of the rafters, he thought that was a point very much exaggerated. Supposing they did have to put a rafter 6 by 2 instead of 5 by 2 in a house of ordinary size, they would find the extra cost was very little. The cost of timber was one of the smallest costs in the erection of a building, and it ought not to be allowed to influence them when considering what was the best form of roof covering. As to thatched roofs, they were not durable, but at the same time it was incorrect to say that the thatched roof was disappearing altogether, and that in course of time it would be a method of the past. A great many people were content to have a thatched roof, knowing it must be renewed in a few years, for the sake of its picturesqueness, and that being so, he believed the thatched roof would continue. Stone slates on cottages had been objected to in the discussion because they resulted in such a sameness of colour. That was true, but why should it not be so? Nothing was more charming than the Northamptonshire grey cottages with grey roofs against the green trees and grass.

The vote of thanks having been agreed to,

Mr. Eden briefly replied. He said he did not expect, nor did he wish, that everything he said should be agreed to without discussion; but he thought there was a point of view worth putting whether it was accepted or not. He was aware that there were difficulties to contend with as to cost, but still more in the matter of by-laws, but it was as well, as facts are corrupting, to resist them by persisting in any ideals they might have.

The meeting then terminated. The next ordinary meeting will be held on November 21, when papers by Mr. C. C. Brewer and Dr. Jane Walker will be read on "Sanatoria for Consumptives." The meeting to consider the question of the acquisition of the Architectural Museum premises will be held on November 24.

EGYPT EXPLORATION FUND.

Sir John Evans, K.C.B. (President), took the chair on Friday last week at the sixteenth ordinary general meeting of the Egypt Exploration Fund, held at the Rooms of the Society of Antiquaries, Burlington House.

Lord Belhaven of Stenton proposed the re-election of the retiring members of Committee, with the exception of the Rev. H. G. Tomkins. Mr. H. H. Statham seconded the motion, and it was agreed to.

Mr. Herbert A. Grueber (Hon. Treasurer) submitted the financial report, which stated that the general balance-sheet showed that the assets of the Fund, the Archæological Survey, and the Græco-Roman branch amounted on July 31 to 5,196*l.* 1s.

Sir W. Charley proposed, and the Rev. F. C. Warton seconded, the adoption of the financial statement, which was agreed to.

The President, in the course of his annual address, referred first to the loss sustained by the Society in the deaths of Mrs. F. Llewellyn Griffith, Dr. John Gladstone, F.R.S., Mr. A. Haworth, and General C. G. Loring. As to their work and publications, the excavations carried on for the Fund by Professor Flinders Petrie were mainly amongst the Royal tombs, and partly within the Temenos of Osiris, at or near Abydos. The account of a portion of the work done is held back for publication next year. One of the results of last year's work had been to add another name to the list of kings who reigned before the first dynasty. For the present the list stands—Ka, Ro, Zezer, Nar-Mer, and Sma. Among the objects found, worked flints in the shape of flakes, axes, scrapers, knives, and other forms were numerous. Among the flints from the Royal tombs is one chipped apparently to represent the cow-like head of Hathor. A figure of a crocodile was also found. The flints from the Temenos are arranged in accordance with the depth (specified in inches) at which they were found below the surface. The number of stone vases that were found was large, but they were for the most part broken. Pottery also was abundant. In bronze were various tools of no particular moment, but some engraved hypocephali are fine specimens of work. The collections of beads and amulets from different tombs, the foundation deposits, the tables of offerings, the sculptures, stelæ, and other objects form valuable additions to the museums to which they had been allotted. Of publications shortly to appear were a fourth and revised edition of "Pithom and the Route of the Exodus," by M. Naville; and an account of the work carried out by Mr. McIver and Mr. Mace during the season before last, entitled "El Amrah and Abydos." For the Archæological Survey Mr. Davies had again carried on a campaign single-handed in Upper Egypt. Tell-el-Amarna was the site chosen. Here Mr. Davies singled out for his admirable *fac-simile* work the largest and finest tomb in the group, that of Mery-Ra (No. 3 of Lepsins, but now known as No. 4). A large part of this has already been well copied by the artists of Lepsins' Expedition and others, but the copies made by Mr. Davies will for the first time give connexion to its scenes and supply important omissions. A short visit was paid at the beginning of the season to Thebes. A magnate

of that capital, Aba, in the time of the twenty-sixth dynasty, reproduced for his own tomb many scenes from that of his namesake, Aba, at Deir-el-Gebrâwi. All that remained of them were traced by Mr. Davies. The publications of the Survey had been increased by one memoir, the first volume of Deir-el-Gebrâwi, devoted to the tomb of Aba and the small tombs of the southern group. Some scenes from the tomb of the Theban Aba had been added for the sake of comparison. The second volume of Deir-el-Gebrâwi will present the remainder of the tombs, give identifications of the fishes depicted in the scenes by Mr. Boulenger, and comprise a chapter on the Coptic *graffiti* by Mr. Crum. Dealing next with the publications of the Græco-Roman branch, the President said the large volume of Tebtunis Papyri had just been issued. The papyri, almost without exception, were obtained from the wrappings of mummified crocodiles disinterred at Umm-el-Baragât in the south of the Fayûm. As to the future work, the cholera was now greatly diminishing in virulence, and Professor Flinders Petrie and Messrs. Grenfell and Hunt feel justified in almost at once returning to Egypt to renew researches. The Temenos of Osiris and possibly other sites at or near Abydos will be the scene of Professor Petrie's operations. The programme of the Archæological Survey for the coming season is to combine work at Tell-el-Amarna with visits to one or more of the small sites on the east bank of the river, where the copyist is much needed. The researches of the Graeco-Roman branch will in the main be conducted at Hibeh—a promising site for papyri, which was partially explored last season. Messrs. Grenfell and Hunt would probably leave this country early in December. They had been hard at work on the Oxyrhynchus Papyri, Vol. III., and it was hoped that it would be ready for publication about July next.

Professor Flinders Petrie said he need hardly trouble them with any details of the work of last year, as the volume "Abydos I." had been in their hands since July. The work of building up the early history of the dynasties had continuously gone forward; and few perhaps realised that what was now quoted as a matter of course in the order of the kings was entirely brought to light only two years ago in "Royal Tombs." When that was published the envious remarked that we should doubtless have to change our minds because the results were so quickly laid down. But scarcely a single conclusion has been modified in the two succeeding years which have built up so much more. And the only argumentative objections that have been raised entirely fall to the ground when accurately studied. The main result of last winter's work was the reading page by page the successive levels of the early town of Abydos; identifying the earlier levels of it with the last four stages of the prehistoric sequence dates, and the later levels with the reigns of the earliest kings. Thus an exact continuity has been determined between the end of the prehistoric age of unwritten record, and the beginning of the 7000 years of written record of Egyptian history. This is entirely the result of archæology; not a word or a sign of writing helped this discovery; and a scholar who only understood the written record would have seen nothing in the site but a meaningless cartload of flints and broken potsherds, as meaningless to him as a papyrus roll is to an Arab digger. The knowledge of the past has gone through four stages: the gold-hunting, the art-hunting, the inscription-hunting, and now the archæology-hunting. Each stage has been despised as foolishness by those who preceded it, and each in its turn has shown that there is a wider interest and a greater importance in the remains of past civilisations. In the coming year we look forward to a very definite course of work. There is the great site of the oldest temple of Abydos, on which we have only yet cleared down to the eighteenth dynasty level. The two or three yards of accumulations which lie below that must consist of the older remains of the temples, which were rebuilt by the earlier kings. Re-used blocks of the sixth, eleventh, and twelfth dynasties show that a series of temples have left their mark; and the temple of the first dynasty kings is the goal which we seek below all these. The site is under water level till late in the spring; and it will be needful to do the costly work of removing all the upper layers in order to dry the soil below, and to be able to work, perhaps under the water, to finish it. But the most important early site in Egypt is worth some trouble and cost to save all we can of history which will never be known except from this ground. Another great work is that of clearing out the two immense tombs, of the twelfth dynasty kings, which were found last year. One of these he had gone through, and seen two vast sarcophagi of red granite, and hundreds of square yards of polished quartzite lining the passages, which show the lavish care of the work. They next hope to bring some fine objects to light from the deep mass of chips and rubbish which half fills the passages and chambers some 600 ft. long. There is also the excavation of the large fort of the Old Kingdom, within which burials of later ages have been found; but as it has never been really cleared out, there is much to be done in it. And besides this, the great cemetery of Abydos has been by no means exhausted yet. Now, all this work is a very large amount to cover, far beyond the scope of one person. The ideal of the Fund has hitherto been that of individual explorers, sometimes with assistance, examining a single building. This has perforce had extensions, but the unit of work has been the type. He hoped that this year will see a different ideal established, that of a group of workers, each devoted to a separate ground, and all co-ordinated in methods and results by one organiser. The Committee had agreed to the principle of extending the work by joining more workers together, and we go out this year a much larger party of united workers than they had ever had before.

That year they started with entirely new helpers. Mr. Hugh Stannus has offered for this year his skill in architecture and drawing, which will help to clear the history of the Osiris temple. Mr. Currelly, Mr. Rawnsley, and Mr. Ayrton are all new to the subject, and with different capacities and in various ways, and, he hoped, would take charge of parts of the works. Miss Hansard has volunteered to stay and give some help with artistic drawing, and Miss Eckenstein will attend to the camp work on the collections. His own business would be organising, arranging, and interpreting the work, drawing, and preparing for publication. On collateral work, apart from the fund, Miss Murray and his wife would be copying a great inscribed tomb.

In conclusion, Professor Petrie said:—"We start, therefore, on what will, I hope, be a new type of working for the future, and shall have a staff which will render the fund less dependent than before on the health of any one worker. It is the duty of this society to rescue what we can in Egypt before it is entirely wrecked by the dealer, the ignorant amateur and speculator, and the commercial destroyer, none of whom leave a shred of information; and a duty which has its scope in the present generation particularly, as at the present rate of wreckage there will be but little left behind for future lives to explore. Now is the time."

The Chairman proposed a vote of thanks to the Society of Antiquaries for the use of their room, and this was agreed to.

On the motion of Mr. Cotton, seconded by Judge Baylis, a cordial vote of thanks was passed to the Chairman, and the meeting terminated.

PROPOSED NEW PREMISES FOR THE ARCHITECTURAL ASSOCIATION.

An "extraordinary general meeting" of the members of the Royal Architectural Museum, Westminster, was held in the Museum at Tufton-street on Friday last week (Sir William Emerson, President, in the chair) to confirm the action of the Council of the Museum at a meeting held on October 24 last. On that occasion the Council unanimously passed the following resolution:—

"Resolved: That the Council of the Royal Architectural Museum and Westminster School of Art, at a meeting called for the purpose, having received a Report from their Hon. Secretary, Mr. Maurice B. Adams, upon the proposed transfer of the premises in Tufton-street and the interest of the Museum Association to the Architectural Association, and the consequent winding up voluntarily of the Museum Association; having also received from their Hon. Solicitors a Report that the Museum Association have the legal power to transfer their premises and interest, are of opinion that it is expedient, and in the best interests of the Architectural Museum, that such a transfer should be carried out upon satisfactory terms being arranged between the parties, such terms containing *inter alia* that after the Museum Association have appropriated all the funds at their disposal towards carrying out the agreement to be entered into, the Architectural Association shall provide such further funds as may be necessary to complete the business; but inasmuch as the Council are not at present sufficiently acquainted with their position, financial and otherwise, to enable them to come to a conclusion, and to inform the Architectural Association what funds it would be necessary for that Association to provide to carry the transfer into effect, a Special Committee be appointed to investigate the whole business connected with the proposed transfer, with authority to consult with the Hon. Treasurer and Solicitors and the Professional Auditor, and to prepare a report and financial statement, to be laid before the Council at an early date. The Special Committee to be authorised to incur any necessary expenses in connexion with the investigation."

Mr. Maurice B. Adams, the Hon. Secretary of the Royal Architectural Museum, in a circular calling the meeting held on the 7th inst., stated that "the Council and friends of the Royal Architectural Museum, while gratefully recognising the good work and financial success of this Institution as a whole, have for a long while past realised that the precise purposes for which the unique collection housed in the galleries at Tufton-street was brought together have not been fulfilled to anything like the extent originally intended. This was due to circumstances quite beyond our control, and, although we have during the past few years been enabled to erect new studios at the cost of over 3,000*l*., and more recently to re-roof and repair the original buildings at a cost of 700*l*., assisted by a temporary loan by the Technical Education Board of the London County Council, the work of maintaining the museum for future use has really constituted the main portion of our achievement, apart from the admirable and successful work accomplished by the Westminster School of Art. Successful as its art classes have been, the collection which distinguishes the Architectural Museum afforded little special assistance to the students attending the school, seeing that their studies were chiefly devoted to drawing from the life and kindred subjects. The Council, with a view of greatly developing the more technical use of the contents of this museum, and thereby carrying out the intentions of its founders, has, with the approval of the Ecclesiastical Commissioners, agreed to the intended handing over of the leases and museum to the London Architectural Association, as advocated in my Report already referred to.

That body for many years has been endeavouring to obtain more commodious premises for the training of architects, and of late a strenuous effort has been made to raise funds for this purpose. Up to the present, however, the amount of money obtained is quite inadequate. Sites are increasingly difficult to obtain, and are becoming yearly greatly enhanced in value. In the meantime the work of the classes is undoubtedly very seriously hampered for want of room, and the Day School has been conducted under the most confined limitations, with consequent disadvantages both to the pupils and teachers. The need of an improved and systematic scheme of education for architects, conceived on wider lines and based on University methods, has become a matter of urgency to enable the forthcoming generation of architects to hold their own with other professions both at home and abroad. Consequently the Council has thus determined, with the approval of the members of this Museum Association, to hand over the premises as they stand, in accordance with my Report (on terms to be arranged as indicated by the above resolution), to the London Architectural Association, who will continue the use of the museum free for ever to the public, and retain in some way the name of the Royal Architectural Museum, subject to the Royal favour of his most gracious Majesty King Edward VII., our Patron. In matters of administration the conduct of the museum will be left to the Architectural Association, its maintenance being provided for by that Society."

On October 27 a resolution was passed at a meeting of the Special Committee of the Museum Council (consisting of Messrs. M. B. Adams, Sydney W. Lee, and W. Pain), instructing Mr. Adams to approach Mr. Seth-Smith, acting for the Architectural Association, with the view of ascertaining if the terms suggested by them would be accepted by the Association. The proposed terms are as follows:—

"The Architectural Association to pay to the

Council of the Museum any sum which may be found necessary to relieve the said Council from all liabilities after the Council shall have expended all their available funds in carrying the transfer to the Association into effect. This liability is roughly estimated at 700*l.*, including the winding-up of the Museum Association and the assignment of the leases.

To retain the services of Mr. Francis Ford, the Curator, for at least twelve months from March 25, 1903, at his present salary; and afterwards, should they not require his services, to pay him 2*l.* 2s. per week for the remainder of his life.

To pay to Mr. Holgate, assistant master since the year 1884, upon completion of the transfer of the museum, a sum of 50*l.*

To undertake, with the consent of the King, that the name of the Royal Architectural Museum shall in some way be retained.

To undertake to keep the museum open to the public, as has been the case hitherto.

The transfer to take effect on March 25 next, and to include all the fixtures, fittings, and furniture then on the premises, and being the property of the Council of the Museum."

The following communication was received by the Special Committee early this month from Mr. H. T. Hare, President, and Messrs. Balfour and Maule, the Hon. Secretaries, of the Architectural Association:—

"The Architectural Association,
56, Great Marlborough-street, London, W.
November 3, 1902.

ROYAL ARCHITECTURAL MUSEUM.

DEAR SIR,—The Report of the Sub-Committee of the Museum Council, held on October 27, 1902, together with the approximate estimate of receipts and expenditure of the Royal Architectural Museum and School of Art, from January 1, 1902, to March 25, 1903, were laid before the Committee of the Architectural Association at its meeting held on Thursday last; and we have the pleasure to forward you herewith a copy of the resolution which was unanimously passed by the Committee:—

'That the Committee of the Architectural Association, having considered the communication of October 27, 1902, made by the Special Committee of the Royal Architectural Museum and Westminster School of Art, unanimously and heartily resolves to accept the conditions suggested in this communication by the Council in transferring their premises to the Architectural Association, subject to confirmation by the body of members in general meeting.'

We have called a special Committee meeting for Friday next, November 7, and Mr. Seth-Smith has kindly promised to convey to us verbally the result of the extraordinary general meeting of the Royal Architectural Museum, in order that due notice of our special general meeting may be given at our ordinary meeting to be held on the same evening at 7.30 p.m.

A Report will be issued to our members immediately after Friday next.

We are, dear Sir, yours faithfully,

HENRY T. HARE, President.
R. S. BALFOUR, } Hon.
HUGH P. G. MAULE, } Secretaries.
Maurice B. Adams, Esq."

It is stated that the money value of the casts and objects of art in the museum, exclusive of the historic furniture and fittings, and furniture in use in the buildings, has been estimated to be between 20,000*l.* and 25,000*l.* Mr. William Pain estimates the value of the unexpired terms of the two leases subject to the ground rent, at 6,500*l.* The amount expended last year in providing new roof covering to the old buildings, and sundry substantial repairs to same, was 735*l.*

In the course of the meeting the following letter from the Bishop of Ely was read:—

"The Palace, Ely,
October 31, 1902.

DEAR MR. ADAMS,—I cannot attend the meeting on November 7, but I am very glad to hear of this proposed transfer of the museum, and all belonging to it, to the Architectural Association, as I think the result will be the most effectual carrying out of the wishes and purposes of its founders.—Yours truly,
ALWYN ELY.
I have read with much satisfaction your Report.'

The President of the Royal Institute of British Architects, Mr. Aston Webb, A.R.A., proposed that the meeting should confirm the action of the Council in adopting the scheme put forward by Mr. Maurice B. Adams, as recorded in their resolution passed on October 24.

Mr. J. P. Seddon, F.R.I.B.A., Vice-President, seconded the motion, and, as one of the oldest members, could only express his appreciation of the gift, and the extended use that it would make possible for the benefit of architects.

Sir William Emerson pointed out that the museum was started about fifty years ago for the purpose of improving the study of architecture, and the building contained a unique collection of choice details of some of the best periods of architectural work. For many years the Council had great difficulty in keeping it on its legs, and they had to thank the School of Art for the assistance rendered in making the museum prosperous. The real object of the institution had, however, never been lost sight of, and grateful as they were to the School of Art, they were obliged to think more particularly of the interests for which the museum came into existence. An opportunity had now occurred for putting the museum on a firm basis, and by placing it in the hands of those who could make a greater use of its contents an enormous advantage would be given to the Architectural Association, the leading educational body of the profession, whose classes were so prosperous that their present quarters no longer afforded the necessary accommodation, so that the Council agreed with the Report that no better use could be made of the museum than by handing it over in the way suggested. The building was exactly adapted to the purpose. The casts were worth between 20,000*l.* and 25,000*l.* There must be no misapprehension as to the financial position of the museum, for it had no monetary difficulties; indeed, they had built the new studios and spent 735*l.* last year on a new roof and repairs. For a long time they had been able to utilise about 100*l.* a year on work of this kind. They were informed that there were no legal difficulties in the way of the proposed transfer.

Mr. W. H. Seth-Smith, on behalf of the Architectural Association, thanked the Council for their splendid gift.

The resolution put from the chair was unanimously adopted, and Sir Wm. Emerson proposed a hearty vote of thanks to Mr. Maurice B. Adams for his twenty-six years of service as Hon. Secretary, and for the way in which he had worked and brought about this movement.

The President of the Institute, Mr. Aston Webb, A.R.A., said that in no measured terms he desired to second this vote, which, he thought, should take a more permanent and concrete form, seeing that no one had done so much for the museum as their Hon. Secretary—often when it seemed a thankless task; and he suggested that the Council should form itself into a committee to carry out this suggestion. He wished also to express, on behalf of Mr. Foster Hayward, his concurrence in such a project, and to unite also in thanking Mr. J. P. Seddon for his years of help and his lectures, for his "Casket of Jewels," descriptive of the museum and its contents. Mr. Adams and Mr. Seddon replied, and the meeting terminated.

THE SURVEYORS' INSTITUTION:

PRESIDENT'S ADDRESS.

THE opening meeting of Session 1902-1903 of the Surveyors' Institution was held on Monday at No. 12, Great George-street, Westminster, when Mr. Arthur Vernon, President, delivered an opening address. In the course of his remarks he referred to the flourishing state of the Institution. There were on the roll of members at the present time 3,424, of whom 1,433, omitting students and ordinary Associates, had qualified by examination. As to finance, they had accumulated invested funds to the extent of about 10,000*l.*, irrespective of the library capital, about 2,000*l.* of prize endowment investments, the produce of generous gifts and bequests by members. They were assembled in their own home, which was free of debt, although burdened with a considerable annual ground rent and heavy maintenance expenses, and were in receipt of an income sufficient to meet the annual outlay. The objects for which the Institution exists were well expressed in the Charter and by-laws, and he thought it might be fairly claimed that the Institution had not been unsuccessful in its effort to give effect to these. Those who founded the Institution were animated by an unselfish desire to raise the standard of the profession, alike in the interests of surveyors and of the public whom they serve. They were content to forego present and personal advantages for the sake of the general good, and so long as that spirit animated the counsels of the Institution it would continue to thrive. But the future was with the young men, and to them he appealed with confidence to rise above narrow and sectional consideration, and to work together in a laudable spirit of emulation to promote the general welfare. Some of the most successful surveyors had laid it down that the head of an office should be able to do personally any of the work required in his office, and to do it as well as any of those he employs. If every young surveyor would do his utmost to attain success, he must practise perseverance combined with patience, never handing over a plan or document as finished without first reviewing its completeness or accuracy, and remembering that concentration of thought and excellence above the average were just those things which command approval and secure ultimate success.

It was surely a great mistake to divide life into the terms of pleasure and work, and to write or talk as if one meant delight and the other weariness. Success and fame would be more readily obtained if they made their profession their pleasure, and regarded intervals of cessation as necessary rest or recreation. "We sometimes hear complaints from young men that they have no business to succeed to, no professional friend to start them up the ladder of life, or no private means to purchase advancement. Properly used, either or all of these things are great advantages, but those of our young men who start too well provided with money or influence would do wisely to consider themselves handicapped in many ways for the race of life, and to beware lest others who have to first struggle for a bare living do not in the long run outstrip them. Many a young man has leaned so heavily on a small private income or on inherited connexions that he has gone backward instead of forward in his chosen career.

There are at least four things absolutely necessary to every thoroughly equipped surveyor. First, knowledge of his art, the technical matters and the basis of the law, science and practice of his profession. This can be acquired at any public school, coupled with the teaching of an agricultural college or other suitable training place. Next, the study of the application of such knowledge to practical work. This is usually obtained in office apprenticeship and practice, or on a landed estate with farming facilities, or, better still, by both together. Then, the cultivation of a sound judgment combined with tact and good manners in dealing with the multiform problems that present themselves to the surveyor, and in his relations with the many varieties of his fellow-men; and, lastly (what may be called the personal factor), the strictest honesty and rectitude of conduct combined with a fastidious regard to professional etiquette as understood by the most scrupulous of his brethren and the best traditions of the profession.

Examinations can fairly test the first and the second, but no certificates can guarantee, or examinations prove, the possession of my third requirement—a sound and sober judgment, the acquisition of which must be of slow growth, and which depends on many qualifications, both moral and intellectual. Of the fourth and last-mentioned, the surveyor's clients, the public, and his fellow-practitioners are the judges, and they soon detect the presence or absence of those qualities which I have ventured to call the personal factor. It may be an advantage to be considered clever, smart, or brilliant, but it is far better to be reputed straight, honourable, and trustworthy.

Young surveyors are too apt to rely on academical honours or examination successes as ends, whereas they are simply means for higher results. Every one in our profession should be trained and intellectually equipped to the highest level of excellence. But teachers, examiners, and employers should endeavour to make it clear that these successes are merely the equipment for life's work. Only as such training and tests give confidence, knowledge to discern and judge, and ability to grapple with the thousand common problems of practical professional life, do they serve the real and highest purpose. The tendency of over-trained or over-confident scholars is to look backward instead of forward, to rely too much on precedents, and to lean rather on theory than on the practical application of principles.

Every surveyor in good practice is continually approached by parents and guardians as to the prospects which the profession offers for young men, and it is a common remark that the boy is generally a clever, good fellow, but is averse to office life and wants outdoor

work. There is, of course, a great deal of employment which a busy surveyor finds to do out-of-doors, but it must be remembered that no one can do much practical work until he has been through a good deal of drudgery in the office. The successful surveyor must in almost all the branches of our profession be able to stand the hard, concentrated work of the office, as well as use his brains in outdoor work, of whatever kind this may be.

As in the other great professions, the openings for successful practice are limited. 'All the marts are thronged with suitors, all the markets overflow,' but while the weakest in every profession may go to the wall, steadiness and even moderate ability can still secure in England as large a measure of success and as genial surroundings as can be easily found in any other country of the world. Lasting success will almost invariably be found to be the result not merely of influence, good luck, or accident, but of knowledge, earnest labour, and persistent application.

There is one condition which often militates against a young man's progress. It is not confined to our profession, but is common to all vocations. It is the haste to grow rich, and the wish to make money too rapidly, and to expect payment for services on too liberal a scale. This haste to grow rich defeats itself in nine cases out of ten. It is the man loving his work for its own sake, who obtains a reasonable share of employment, who is content with moderate fees, and lives within his income, who is most likely to become eminent.

The Surveyors' Institution have been often asked to adopt a scale of fees for professional work, but the experience of the wiser and more far-seeing members of our craft has invariably shown that this is undesirable. It is, moreover, a practical impossibility. The scale of fees varies largely throughout the country. The value of much of the delicate and difficult work entrusted to surveyors must depend mainly upon individual experience and reputation, and even if it were possible to promulgate a scale, surveyors could not enforce it in any court of law. On the other hand, local authorities have adopted scales for much of the work involved in their various districts, and these are largely made use of, while custom as to charges, which varies greatly in different districts, has still the force of law, and is largely applied.

The valuers' profession, or, as our Royal Charter puts it, 'the art of determining the value of all descriptions of landed and house property, and of the various interests therein,' is one of enormous importance and 'constantly increasing complexity.'

It is sometimes said that valuers earn unduly large commissions for such work, and members of other callings (who should know better) occasionally assert that this part of a surveyor's profession is simple and easy, and sometimes, indeed, assume that it is the result of mere rule of thumb. It seems to me that every valuation of property may involve at least four problems, each one of which requires, for accurate solution, the careful exercise of skill by a well-trained and experienced mind. To ascertain the present market value of any property it may be necessary—

(1) To determine its exact net yield or rental value calculated at the rate of interest which such a property might be expected to return according to its character, after deducting all proper outgoings; (2) To consider in many cases the proper cost of the land, buildings, or other items of value, after eliminating all waste, unnecessary expense, or unproductive elements; (3) By a process of comparison to estimate, wherever possible, its proper value as established by the market price realised for similar properties; and (4) To ascertain all the various present or contingent interests in the property, all existing or potential drawbacks, or any possible elements of appreciation or depreciation in the future, together with any other unusual or special circumstances affecting its value.

A prudent valuer will omit none of these points from his purview, and it hardly needs repeating that skill, care, and experience can alone settle all or either of these problems. Most valuations of importance contain novel points, but a careful consideration of the above conditions should enable every valuation to be capable of reasonable proof of accuracy."

Subsequently the President said: — "All things considered, I am clearly of opinion that the landed interests of the county are in a better rather than a worse condition as compared with five or ten years ago. In the sixties 'Mr. Greenlands,' as landed property was often called, was considered by many a more desirable security than Consols. Land has suffered a fall in value varying from 30 to 60 per cent., but in recent years we have seen in that choicest of all gilt-edged securities a fall of about 20 per cent. Who shall say that land may not, in years to come, enjoy something like a repetition of the boom which it has more than once experienced in the past. The land of the country considered as a commodity is strictly limited in quantity, while the population is continually increasing, and trade is expanding by leaps and bounds. Our cities are choked with traffic, and overcrowded with shops and factories, which need light, fresh air, and cheap and healthy labour, and show a disposition to transplant themselves into the fair fields and bright air of the countryside.

Again, country residences, from the clerk's cottage home to the stately mansion of the rich, are increasing and multiplying in the parts within easy reach of the cities. Small farms for residential purposes are in increasing demand at present prices, and sporting estates of moderate size are saleable everywhere. The wealth of the community is seeking investment, even at low rates of interest, and by the intelligent investor a portion at least of his capital and savings can advantageously be devoted to the purchase of land at present prices with risks a hundredfold less than if invested in most foreign securities or in the 'wild-cat' companies which are weekly launched by flattering promoters. For myself, I believe in land. I believe in its future. It can be purchased as an investment at one-half or one-third the price which was greedily paid for it a quarter of a century ago, and while the house property of the Metropolis will always tempt a large section of investors, it would surely be a wise policy for even the capitalist who seeks the larger return which bricks and mortar in the cities afford, to acquire some share of the landed property now available."

In dealing with the Housing question, the President said: "The latest project of legislation with this object is embodied in the recommendation of a hybrid Committee which has just issued its report. The Committee was appointed 'to consider the standing orders relating to houses occupied by persons of the labouring class, and clauses usually inserted in private and local bills and provisional order confirmation bills, and in pursuance thereof and to report whether any amendments should be made in such standing orders and clauses.'

Thirteen witnesses were examined, among whom was only one surveyor, our Vice-President, Mr. H. T. Steward. In the result the Committee resolved to submit two model clauses and three corresponding standing orders for approval by the legislature in substitution for existing ones, and recommended that they be embodied in a public general Act.

The displacement of large numbers of the labouring classes by the appropriation of areas for public works and undertakings, without due provision for rehousing them before they are actually displaced is an admitted grievance, and it is generally felt that the new houses erected for them have hitherto been too frequently of such a character as to attract the better class of artisans rather than the people for whom they are specially provided. There is no doubt also that new buildings have often been erected at too great a distance from the old houses. Some municipalities have—in a spirit of over-ambitious enterprise—expended large sums in the provision of labourers' tenements, which have failed in their special purpose, and involved a serious annual burden on the rates. These are all matters which admit of remedy, but I confess that I shrink with some alarm from the proposal that the Secretary of State should have the power of fixing the rentals, and am surprised to learn that he already exercises this function without legislative sanction. The principle is a dangerous one, and its introduction is unnecessary if the authorities take care—in the words of the fifth paragraph of the report—that the 'new houses to be provided shall be suitable for persons of the labouring classes, and not too ambitious in character and design.'

There are many topics on which, if time and space permitted, one would desire to touch. On every hand we see signs of changes and rapid evolution which will be of the greatest interest to surveyors in the immediate future. Our cities, and especially the metropolis, have multiplied in population until the traffic has become unmanageable. Facilities for the conveyance of goods must be multiplied. Pedestrians must be provided with easy and safe access, and bold comprehensive schemes, such as those of our distinguished Associate of Council, Sir J. Wolfe Barry, must be taken in hand, or the congestion of London's centres will become unendurable.

We look forward with some assurance to an early reorganisation of the docks and Port of London that they may be worthy of the first city of the world. We await the proper utilisation of the great deserted silent highway of the Thames. There is already a rush of schemes for piercing London with tubes and for providing tramways to radiate everywhere, and it may be that by the gradual completion of well-devised and comprehensive schemes London may become the place of convenience and of beauty which it deserves, while the countryside may share its prosperity and afford within easy reach delightful and healthy homes for the toiling millions of the cities. . . ."

On the motion of Mr. A. Buck, seconded by Mr. Howard Chatfeild Clarke, a hearty vote of thanks was accorded to the President for his address.

The President, in the course of a brief reply, said a very attractive subject for discussion was that of Municipal Socialism, and how far it was economically sound for municipalities to compete with those who supported them. No one would wish to discourage municipalities supplying what was essential to the health and comfort of a community, but he hesitated to agree that they should enter into fields where there were people supplying what was wanted with equal advantage to the public.

It was announced that the next ordinary meeting would be held on November 24, when a discussion would take place on the paper read by Mr. Hooper last April on "Compensation for Fruit-planting." On November 17 a meeting will also be held to consider whether the members of the Institution are not being taxed beyond the value of their receipts.

ARCHITECTURAL SOCIETIES.

Leeds and Yorkshire Architectural Society.—The opening general meeting of the Leeds and Yorkshire Architectural Society was held on the 6th inst. at the Queen's Hotel, Leeds. Mr. Butler Wilson, the President of the Society, occupied the chair, and, in his Presidential address, referred to some of the considerations which he ventured to think had affected, and would still further affect, not only their interests as architects, but also the interests of their clients. Dealing with some of the ever-increasing difficulties which beset the path of the most enthusiastic, he spoke of the hindrances which interfered with the realisation of perfect planning. Architects often had to deal with a site which bristled with obstacles and restrictions, and in such a case it would be a fatal mistake to endeavour to place there a preconceived arrangement only suitable for some totally different situation. Rather should they endeavour to turn obstacles into advantages. Though they might have the desire to make themselves thoroughly acquainted with the needs of their client, those endeavours were often met by ill-concealed indifference—an indifference which often expressed itself in some such words as "get the building finished, and we will adapt it to our requirements." But that was entirely unsatisfactory. Architects must be determined to fulfil requirements in a far more complete way than their clients had ever imagined. Another difficulty was that of adapting the acknowledged forms of architecture to the ever-increasing advantage of modern constructive inventions. The fight between material and imagination did not decrease with the advance of time, and there was no doubt that many accepted forms were, under certain modern conditions, far from applicable to functions which this age demanded. To grapple with those demands, and at the same time preserve the essential qualities of their art, was the task which lay before them. This could best be done, not by ignoring or rejecting inventions and appliances which, on the grounds of their practical utility, had come to stay, but by a frank acknowledgment and acceptance of their value, and a determination

to make those inventions their servants rather than their masters. They must be ready to progress in that respect, and to seize upon all that was best in modern constructional methods, for there was no law born of past experience which might not be instantly repealed owing to the appearance of new conditions and materials. If architecture as a fine art was to live, it must adapt itself to present needs. Iron and steel had almost ousted carpentry from buildings of any size, and the arrival of the flanged beam and iron joist marked a great era. Steel, combining as it did the virtues of cast and wrought iron, could be utilised for supporting enormous loads. The idea that constructive metal work needed concealing from view was rapidly dying out. They were now able to build a partition 2½ in. in thickness, which local authorities recognised as a 9-in. brick wall for fireproof purposes. Architects were, indeed, feeling the steady invasion of the technical constructor. Technical construction was advancing, and they must not allow the constructive specialist to gain an ascendancy. There was an invasion which, if it was allowed to continue, would end in disaster; an invasion of the domain of their art by a commercial element, coming forward and successfully luring numbers of their brethren to relinquish their hold upon the æsthetic side of architecture. The busy practitioner was tempted by the readiness of the trade to relieve him of the arduous work of design. The tempting words, "designs furnished free," were constantly meeting his eye; and the offers were made by the terra-cotta manufacturer, the cabinet-maker, the mosaic worker, the glass-stainer, and the ornamental plasterer. He counselled that on no account should architects accept such offers; any such acceptance would disgrace their profession. They could design for themselves. Having spoken of the approaching invasion of their art, and the difficulties which beset the enthusiast, he pointed out the means by which the invasion might best be resisted, and the difficulties be overcome. Last July the Council decided to take steps to found a school of architecture, to afford facilities to Associates for the study of architecture. In casting about, the Leeds Institute was approached, and the response was most encouraging. The Committee of the Institute signified their willingness to co-operate with the Society to the extent of accepting various proposals. A room was to be set apart for the sole use of the students of the school; the master was to be nominated by the Council of the Society; a representative of the Council was to have a seat on the Committee of the Institute; members of the Council were to be received as visitors to the classes, and prizes and studentships offered by the Society were to be competed for by associate students. By those arrangements they had at least achieved that which was the nearest approximation to the spirit of the decision of last July; and it was extremely gratifying that, when the new buildings in Cookridge-street were completed, there would exist in the city of Leeds a school of architecture which should justify its title.—Mr. R. Wood moved a vote of thanks to the President for his address. This was seconded by Mr. E. H. Hepper, representing the Leeds Institute, who stated that there were already eighteen students in the new architectural class connected with the Institute. He thought that the tendency of the times was all towards specialism in architecture, as in other professions. Mr. G. F. Bowman and Mr. G. B. Bulmer supported, and the motion was adopted. In responding, the President referred to the Crafts Evenings they had arranged, from which he thought valuable practical information might be obtained. Prizes were distributed to the successful students in the competitions for measured designs, sketches, &c.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—The Council met in their rooms in 20, Lincoln-place, Dublin, on the 3rd inst. In the absence of the President, Mr. J. Rawson Carroll occupied the chair. A deputation, consisting of Mr. James Beckett, Mr. Bolton, and Mr. Jolley, representing the Master Builders' Association, attended, and submitted to the Council several questions affecting the building trade. The matter was fully discussed, and the Council expressing themselves in sympathy with the views put forward by the deputation, these gentlemen withdrew. A letter was read from the hon. secretaries of the Ulster Society of Architects in reference to a proposed alteration in the by-laws of the Society. The proposed alteration was approved by the Council. The Secretary of the Architectural Association of Ireland wrote announcing that the Institute Prize had been awarded to Mr. J. Knox Vinycomb.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The opening meeting of the forty-fifth session of the Edinburgh Architectural Association was held in the Association's Rooms, 117, George-street, Edinburgh, on the 4th inst., Mr. A. Hunter Crawford, the President, in the chair. It was resolved that a communication should be sent to the Town Clerk, suggesting that the architectural profession should have an opportunity of submitting designs in competition for the proposed Usher Hall. The chairman intimated that the Association had become affiliated with the Royal Institute of British Architects. Mr. Crawford, in the course of his presidential address, said that in one branch of activity their Association was wanting—they had no work classes or studio. Since the School of Applied Art was begun their work classes had been discontinued, and it was felt that so long as that School provided good teaching under the immediate control of architects, that anything their Association could do would be a hindrance rather than a help. They were unanimous in acknowledging the excellence of the architectural education supplied by the School of Applied Art, especially in draughtsmanship and knowledge of style, and architects had seen the results in their own assistants; and the marked success of its students (out of all proportion to their numbers) were known to them all. Could they rely on this school being continued on the same lines as hitherto, with a prospect of its development to include all the teaching necessary for the full education of their students, they could wish for nothing better; but this was improbable, everything pointing to the early closing of the school, or, at any rate, its removal from the direct control of architects engaged in the daily practice of their profession. So soon as the school lost touch with practising architects, they might look for a falling off in results. There might be more passing of examinations, more academic teaching, but the results, so far as providing the students with ability to design and knowledge to construct, would be found to be meagre in the extreme. He asked the architects present what weight they gave to South Kensington certificates of honours in building construction when engaging an assistant? Was it not almost invariably found that knowledge acquired to pass these examinations was of little use when the student was brought face to face with a single piece of real building construction? Book learning was only an infinitesimal part of the education of an architect. It was absolutely essential, geniuses excepted, that the education should be given, or, at least, directly controlled by architects in the active practice of their profession. In his experience in this country he had not seen great results from the professional or University teaching of architecture, while everything pointed to the good that was done by teaching it in a school where practically the whole of the teaching was given by architects in active practice. In any reports he had seen regarding proposed changes in art education in Edinburgh, no one had taken up a strong position in this matter, which he believed to be the most important in the whole question. It was the principle which was adopted at the inauguration of the School of Applied Art.—On the motion of Mr. Thomas Ross, of Messrs. Macgibbon & Ross, seconded by Mr. Daniel Macfie, Mr. Crawford was cordially thanked for his address, and the proceedings terminated.

QUEEN VICTORIA MEMORIAL ON THE EMBANKMENT.—A memorial tablet is to be placed on the railings of the gardens of the Middle Temple, facing the Embankment, to commemorate the fact that the late Queen passed by that spot on her last visit to the City. Incidentally, the tablet will mark the City's boundary in that direction. The memorial, which has been designed by the City Surveyor, Mr. Andrew Murray, consists of Portland stone, with two panels, the lower one containing an inscription, and the upper one, which is of marble, having in the centre a marble medallion portrait of Queen Victoria, surrounded by a wreath of laurel. The carving of the work embodies the Royal arms, the arms of the City, and the roses of York and Lancaster. The memorial will measure 9 ft. 3 in. in height from the pavement level, and will be 4 ft. 3 in. in width. The contractors are Messrs. Dayman & Son, of Vauxhall Bridge-road.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The first meeting of the session was held at 32, Sackville-street on the 5th inst., the hon. treasurer, Dr. W. de Gray Birch, in the chair. The Rev. H. J. Dukinfield Astley exhibited a silver token, the size of a threepenny-piece, which was picked up at East Rudham, Norfolk, recently. The token bears upon the obverse, Richard Crouke, 1658, with heraldic lion and a bag or pouch, probably of the Merchant Taylors' Company, in the centre; reverse, "At Seven Oakes, Kent," and the letters R.C.A. in the centre. Mr. Astley also exhibited a photograph of the old porch of Braizeworth Church, near Eye, in Suffolk, having curious and unusual Norman details. Mr. Patrick was of opinion, from careful examination of the photograph, that although the details of the ornamentation were of semi-Norman character, they did not at all form part of the original design of the porch, which was the result of a rebuilding at some period when architectural fragments from other places had been worked in. Mr. Robins exhibited, through Mr. Astley, the photograph of a Roman sepulchral cinerary urn, which was discovered in a broken condition in a labourer's cottage at Brentwood, in Essex. The urn is of Yellow Sienna marble, and of very beautiful worksmanship. It has been carefully repaired, and is now in excellent condition. For several centuries the urn is thought to have been preserved at Myddleton Hall, Shenfield, near Brentwood. The urn bears the Imperial wreath and an inscription partly obliterated, which reads:—

DIS · MANIBVS · QVINT · FABI · FELIC · CONS

An interesting paper on Oatlands, in Weybridge, was read by Mr. S. W. Kershaw. The Manor of Oatlands is first mentioned in the reign of Henry VIII., who often came here from Hampton Court for the pleasures of the chase. He built the mansion, to which many later additions were made. The mansion was conveyed to the King by indenture dated 1538—in consideration of a grant from him of the site and demesne lands of Tunbridge in Kent, and of others in Surrey. The name was anciently spelt Otelands, Otland, Othland, and Owteland, and the owners had long held the manor lands of Byfleet and Weybridge by leases from the Crown. A drawing by Antonio Van Wyngaerd (1559) shows the mansion as constructed of brick, and in general appearance somewhat resembling one of the Cambridge colleges. Oatlands was a Royal abode from the time of Henry VIII. to the Commonwealth, when it was nearly all destroyed. In the reign of Elizabeth, Oatlands was a favourite resort, probably from its comparative nearness to Nonsuch, and many State papers are dated from both these noted places.

ENGINEERING SOCIETIES.

INSTITUTION OF JUNIOR ENGINEERS.—The Institution commences its twenty-second Session on Friday, the 21st, when the new President, Colonel E. Raban, R.E., will deliver his opening address, on the important subject of "The Preparation of Engineering Projects." Among the other papers promised for the Session are: "The Planimeter, explained Simply, without Mathematics," by Mr. W. J. Tennant; "Practical Notes on the Use and Maintenance of Electric Motors for Factory Purposes," by Mr. W. T. George; and "The Effect of Design on Methods of Construction, from a Contractor's Point of View," by Mr. R. W. Newman.

BOOKS RECEIVED.

SCIENTIFIC PROTECTION: A Guide to the Proper Application of Lightning Conductors. By Alfred Hands. (J. W. Gray & Son.)

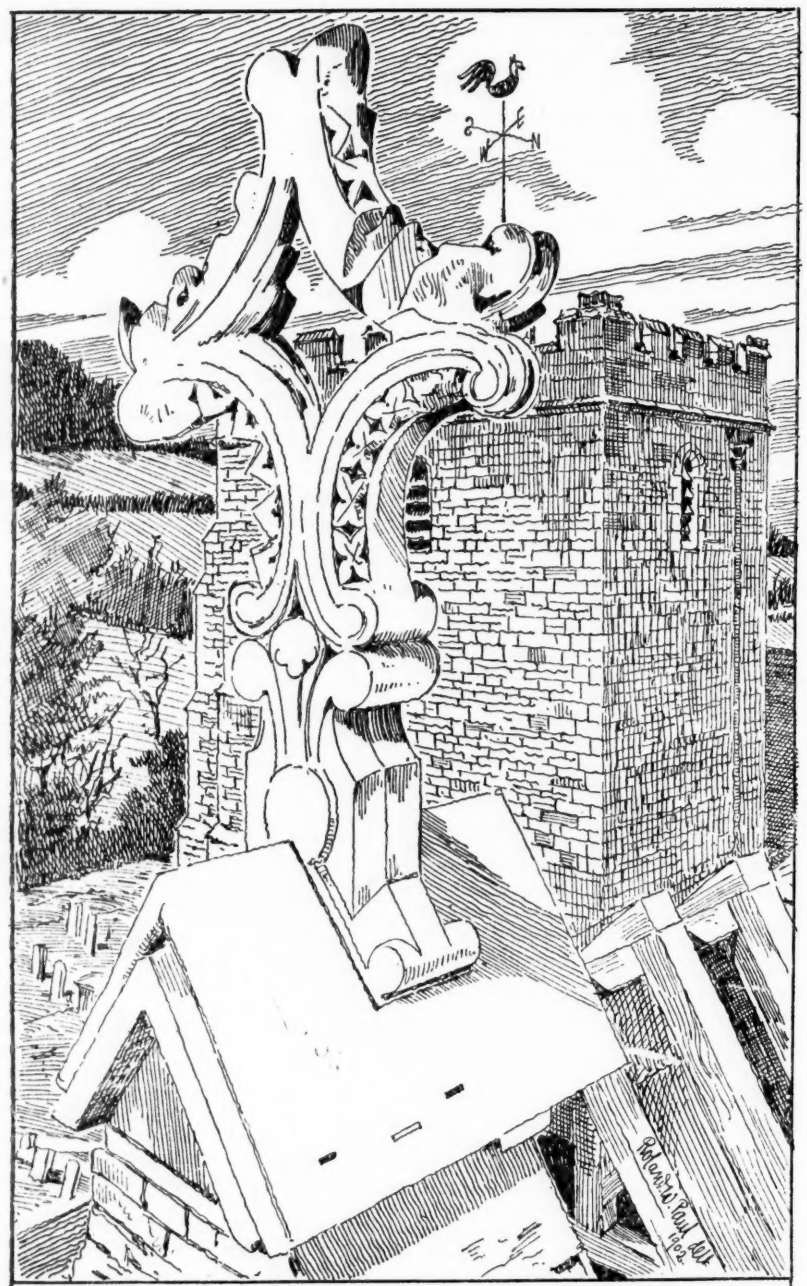
CHRISTMAS: ITS ORIGIN AND ASSOCIATIONS. By W. F. Dawson. (Elliot Stock.)

DIE ROMANISCHE UND GOTISCHE BANKUNST DER KIRCHENBAU. Erstes Heft. Van Max Hasak (Arnold Bergsträsser, Stuttgart.)

LETTERING IN ORNAMENT.—By Lewis F. Day (B. T. Batsford.)

NEWLANDS' READY RECKONER FOR ROOFING. By R. W. Newlands. (Hazell, Watson, & Viney.)

CONGREGATIONAL CHURCH, DARNALL.—The memorial stone was laid on the 30th ult. of the new Darnall Congregational church and classrooms. The church will have seating accommodation for 550 persons, and there are to be eight classrooms below, which will accommodate 300 scholars. The architects are Messrs. Moulds & Porritt, of Manchester and London.



Abbey Dore Church: Cross on East Gable.

Illustrations.

LIVERPOOL CATHEDRAL COMPETITION.

IN this study for a modern cathedral the idea was to adhere in a great measure to the traditional cruciform plan, and at the same time to provide a large area from which the congregation could have an uninterrupted view of the preacher.

This seemed to be best attained by adopting the experiment of a large dome with diagonal flanking towers, under which considerably more seating space is gained.

Although not strictly designed to fit such a narrow site, it was thought that a central and dominating feature was desirable for a building of such importance, and especially so in Liverpool, which is somewhat lacking in line as seen from the river. F. WALLEY.

ABBEY DORE CHURCH, HEREFORD.

THE illustrations show, in two cases, the result of the removal of the accumulated soil round the exterior. Outside the north door of the presbytery steps were found, and a wall that extended to the chapter-house, and formed probably one side of a passage from the church to the infirmary and abbot's house. On the doorway itself is still some good thirteenth-century ironwork (illustrated in the *Builder*, April 8, 1893). On the west side of the church the bases of the two columns of the nave arcade still standing have been uncovered, and also the jambs of the doorway that formed the communication between the nave and the cloister.

The drawings of the interior show part of the south transept (with a curious fresco of "Time" on the west wall), and a view across the east end of the presbytery, showing the effigy popularly known as that of the founder, Roger de Ewias, and the sanctuary rails and altar slab erected by Lord Scudamore in 1634 on "three pillars of stone."

The repairs are being carried out by Messrs. Collins & Godfrey, of Tewkesbury, under the direction of the architect, Mr. Roland W. Paul, F.S.A., of London.

An account of some of the recent discoveries will be found in the *Builder*, April 19, of this year, and the architect's Report.

The illustration of the gable cross is from a sketch recently made from the scaffolding: it is a curious instance of seventeenth-century work, with imitation of earlier detail.

WESTHOPE MANOR, SHROPSHIRE.

THIS house, now nearing completion, is situated some five miles from Craven Arms.

It is built of brick, and rough cast, and local stone quarried on the estate, with red tile roof, &c. The terraces, forecourt, garden, walling, and steps are also being formed.

The builders are Messrs. Broad & Co., of Great Malvern, and the architect is Mr. E. Guy Dawber, of London. The illustrations are reproduced from the two drawings in this year's R. A. Exhibition.

SCREEN, POTTERS BAR CHURCH.

THE screen formed part of a rearrangement of the fittings of the chancel, carried out last year, which included also a new dossal behind the altar. The woodwork was carried out by Messrs. H. & E. Lea, of London, and the decoration of the screen and dossal cornice by Messrs. Flashman & Sons, of Barnet, from the designs and details supplied by the architect, Mr. Roland W. Paul, F.S.A., of London. Messrs. A. Stalman & Co., of London, supplied the dossal.

The drawing was exhibited in this year's Academy.

ADDITIONS TO A HOUSE IN HERTFORDSHIRE.

THE drawing, exhibited in last year's Academy, shows a scheme for the enlargement of an old house, part of which has already been completed. The builders were Messrs. Gimson, of Royston, Herts, and the architect, Mr. Roland W. Paul, F.S.A, of London.

ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

THE second meeting for this session of the Discussion Section of the Architectural Association was held at 56, Great Marlborough-street, W., on Wednesday, the 5th inst., when a paper on "The Buildings about a Farm" was read before a well-attended meeting by Mr. H. Munro Cautley.

Mr. Geo. H. Smith was in the chair, and, having signed the minutes of the preceding meeting, reminded the members of the privilege of question time. Many important questions having been asked and replied to, the Chairman called on Mr. Cautley for the paper of the evening, the subject matter of which was treated by the author in a highly interesting and instructive manner, and the many practical hints with regard to details showed a close acquaintance with practical farming in the Eastern counties. Mr. Cautley strongly advocated the use of local materials and simplicity of construction in the fittings and buildings about a farm, so that repairs could be readily carried out by the estate carpenter. Having taken the members carefully over the necessary buildings for a farmstead, and emphasising the value of Dutch barns in these days when thatchers were scarce, Mr. Cautley concluded by inviting discussion and promising to reply to any questions.

The discussion was opened by Mr. C. H. Brodie, who proposed a hearty vote of thanks to Mr. Cautley for having come all the way from Ipswich that day to give the Section such an excellent paper. He said the author had given them much valuable information which was not to be found within the covers of text-books, and showed an intimate acquaintance with the subject of farm buildings.

The vote of thanks was supported, and the discussion briskly carried on, by the following gentlemen:—Messrs. P. J. Turner, Horseman, Louis Ambler, R. H. Weymouth, Ernest Radford, Arnold Tayler, F. Lishman, H. Gregory Collins, and the Chairman. The discussion was most interesting and well maintained, and was summed up most ably by one of the Honorary Secretaries of the Association, Mr. H. P. G. Maule, who attended as Special Visitor of the evening. He said he had listened with great pleasure to Mr. Cautley's remarks on a subject which seemed to be neglected by architects. He was in complete agreement with the author concerning the use of local materials, and thought a most satisfactory architectural effect could be obtained, and was always most pleasing, when proper attention was paid to local customs and a skilful employment of materials ready to hand. He also strongly advocated the building of good cottages for the farm hands, the provision of which would go a long way towards helping to keep the workers on the soil. He had much pleasure in supporting the vote of thanks.

The Chairman having put the vote to the meeting, it was carried with acclamation.

Mr. Cautley, in replying, said the preparation of the paper had given him much pleasure, and thanked the members for the kind way they had listened to him; and, having briefly replied to the various questions, the meeting terminated.

The next meeting will be held at 56, Great Marlborough-street, W., on Wednesday,

November 26, at 7.30 p.m., when a paper on "Decorative Plaster Work" will be read by Mr. George P. Bankhart.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday afternoon in the County Hall, Spring-gardens, Sir J. McDougall, Chairman, presiding.

Vauxhall Bridge.—Sir J. W. Collins presented a petition from the Royal Institute of British Architects in regard to the scheme for rebuilding Vauxhall Bridge. The petitioners said: "We again desire to impress upon the London County Council the vast importance of such a structure as a great architectural memorial of our time and of twentieth-century art. A bridge across the Thames has an architectural value to the City hardly second to that of our great monumental buildings, and we respectfully desire to express our earnest hope that the erection of a stone or granite bridge may be found possible, and that the necessary powers as originally contemplated for such a scheme may be obtained. The Council of this Institute has been favoured with an opportunity of inspecting the new design for the proposed steel bridge, with ornamental facings and parapets in cast iron carried by granite piers. We express no opinion on the engineering questions involved, but we feel it our duty to point out that there is a total lack of any artistic quality in the ornamental portions of the design. We remain of the opinion so often expressed by us that in dealing with great architectural monuments, which in their simplicity of form rely only upon competent artistic treatment for their monumental success, it is essential to adopt the system common in other countries of associating an architect with the engineer. We have no hesitation in saying that if the scheme of the pseudo-Gothic type illustrated should become a reality it will remain a discredit to the art of the century, to the London County Council, and to all concerned in its conception.—Aston Webb, President; Alex. Graham, Hon. Secretary; W. J. Locke, Secretary."

The petition was referred to the Bridges Committee.

At a later period of the sitting, Dr. Longstaff asked the Chairman of the Bridges Committee whether the present Engineer of the Council was in favour of constructing the bridge of concrete as proposed in the former recommendation? But was it found that the foundations would not be sufficient to carry a concrete bridge?

Mr. Horniman asked if the drawings of the proposed bridge could be put up in the lobby.

Mr. F. Sheffield, Chairman of the Committee, in reply, said the drawings should be put up in the lobby. As to Dr. Longstaff's questions, the Engineer was not so favourably disposed towards concrete construction as was the late Engineer, in the conditions which are necessary at Vauxhall Bridge as regards non-interference with the traffic on the river. He would prefer either a granite or a steel bridge to a concrete structure. In excavating for the piers of the bridge the clay has not been found to be of so satisfactory a character as was disclosed by the borings made before the contract was let. The Engineer wishes to keep the weight on this clay as light as possible, and he considers, therefore, that it would be preferable not to have a concrete bridge.

Dr. Longstaff: Why was not this put in the Report?

Mr. Sheffield said all that would be gone into when the Report was discussed.

Loans.—On the recommendation of the Finance Committee it was agreed to lend Battersea Borough Council 4,795*l.* in connexion with a housing scheme; Wandsworth Borough Council 2,100*l.* for plant for removal of street refuse; Hampstead Borough Council 2,830*l.* for erection of walls at depôt; and Stepney Borough Council 1,935*l.* for street lighting purposes.

Public Clocks.—It was agreed, on the recommendation of the General Purposes Committee, to insert in the next General Powers Bill a clause to enable Metropolitan Borough Councils to incur expenditure in the maintenance of public clocks in their respective boroughs.

Underground Railways.—The following recommendations of the joint meeting of the Parliamentary, Highways, Housing of the Working Classes, and Finance Committees were agreed to, after a long discussion:—

"(*a*) That, in the opinion of the Council it will be detrimental to the interests of London if any Bill for the construction of a tube railway is proceeded with in Parliament until a full inquiry shall have been held and a Report presented upon the following questions:—

1. How far it is possible to adapt the provisions of the Light Railways Act, 1896, to underground railways in London as recommended by the Joint Select Committee of 1901.

2. Whether it is possible and desirable to formulate some general scheme of underground railway accommodation capable of serving the requirements of London as a whole, and, if so, what should be the main features of such general scheme.

3. Whether a system of deep level tube railways will afford the best results, or whether it will not be preferable to adopt either wholly or partially the system of underground locomotion in operation in Continental and American cities.

4. How and by whom such general scheme can best be carried out having regard to—

The general traffic within London.
The special need of supplying means of access to the suburbs.
The housing problem.
The need for cheap fares.
The raising of necessary capital.
Existing means of locomotion.

(*b*) That, with a view to obtaining such inquiry as above mentioned, a deputation do wait upon the President of the Board of Trade and ask him to assist in obtaining the appointment of a Commission to hold such inquiry, with power to consider all proposals that may be brought before them for the construction and supervision of underground railways in London, and to report as to the desirability of establishing some Authority to prepare and issue provisional orders for confirmation by Parliament authorising the construction of such underground railways as such Authority may be satisfied will be for the public benefit; and in the meantime to use his influence to obtain the suspension of any Bills that may be introduced into Parliament for the construction of tube railways in London.

(*c*) That it be referred to the Parliamentary, Highways, Housing of the Working Classes, and Finance Committees to jointly arrange for the proposed deputation, and to report again to the Council as to any further steps they may deem it advisable that the Council should take."

Improvement: High-street, Notting Hill.—The Improvements Committee recommended, and it was agreed:—

"That the estimate of 4,500*l.* submitted by the Finance Committee be approved; that application be made to Parliament in the Session of 1903 for powers to enable the Council of the Royal Borough of Kensington to arrange for the acquisition of the whole of the properties between High-street, Notting Hill, and West Mall, needed for the widening of the former thoroughfare from No. 21 to No. 35 (inclusive) in accordance with the plan presented to the Improvements Committee on January 30, 1901; and that provision be made in the Bill for the Council to pay half the net cost of the improvement, provided that if the ultimate net cost exceeds 9,000*l.*, the Council's contribution shall be limited to 4,500*l.*, the remainder of the cost of the improvement being borne by the Borough Council."

Cross Traffic in Main Thoroughfares.—They also brought up the following Report:—

"We have proceeded upon the following reference from the Council on January 21, 1902—'That, having regard to the fact that the traffic in main thoroughfares becomes daily more congested, and that such congestion, though assisted by the mixture of slow and fast draught and the narrowness of the streets, is even more certainly caused by cross traffic, it be an instruction to the Improvements Committee to consider the possibilities of some "over and under" arrangement, by means of bridges or subways, in or about every spot where two large streams of vehicles have now perforce to wait to cross each other.'

Our first action was to consult the Highways Committee, with the result that a Joint Sub-Committee of the Improvements, Highways, and Bridges Committees was appointed. The Chief Engineer was directed to bring up a full Report, and we also made arrangements for returns of the traffic at particular places to be taken. It occurred to us that perhaps the most striking places where some arrangement could be made for assisting the cross-traffic were:—

1. At the junction of Wellington-street with the Strand.

2. At the junction of Southampton-row with Holborn.

The Statistical Officer in due course submitted to us a Report giving in great detail the returns of the traffic taken at the two points in question on two successive days between the hours of 8 a.m. and 8 p.m. These returns showed the number and particular kind of vehicles passing in each direction; the number and duration of the stoppages to traffic on each route; and the maximum and minimum number of stoppages per hour. From these returns we endeavoured to form an estimate of the possible financial loss caused by the frequent delay of the traffic. In attempting to estimate this loss, we found that the matter was one of considerable difficulty and uncertainty. The Statistical Officer, in reporting the result of an examination of the detailed returns, pointed out that in the Strand 6,341 vehicles were affected by the stoppages out of a total of 19,724 vehicles passing along the thoroughfare, *i.e.*, about one-third of the total number of vehicles.

In estimating the value of the time lost to the various parties concerned, we attempted to average the number of occupants of omnibuses and other classes of vehicles separately, and to make allowance for such of the passengers as might not be engaged in business. Vehicles carrying goods had to be dealt with on a somewhat different basis, and something was allowed for bicyclists. The statistical officer has advised us that, making the best estimate possible in the circumstances, and taking the lower figure in every case in doubt, he estimates a total loss of time to the value of 7,180*l.* per annum in respect of the stoppages at the junction of the Strand with Wellington-street, and of 3,430*l.* per annum at the junction of Holborn with Southampton-row. These estimates are in respect of loss of time incurred by individuals only, and the following items are excluded altogether from the calculation:—(*a*) Delays by temporary checks; (*b*) delays occurring outside the limits of the twelve hours during which observations were made; (*c*) persons not travelling on business; (*d*) losses by detention of goods; (*e*) losses on vehicles; and (*f*) losses due to the delay of pedestrians.

We felt that further facts could be obtained if we pursued the examination of the case further, but before doing that we proceeded to consider the practicability of constructing bridges or subways to relieve the cross-traffic. We instructed the Chief Engineer to report (1) what gradient would be necessary to carry a thoroughfare over or under another thoroughfare; (2) what are the gradients of Wellington-street north of the Strand, Trafalgar-square, Haymarket, and Piccadilly near Half Moon-street; (3) the minimum headway necessary to enable vehicles now in ordinary use to pass under a bridge in safety; (4) the least thickness needed for the road across a bridge; and (5) whether it would be possible, in order to reduce the gradient, to arrange for the carriageway of a bridge to be only a few inches in depth, but supported by the sides of a bridge, the footway being, perhaps, of greater depth. Dealing with these points in order, the Engineer has advised us (1) that a gradient of 1 in 30 is the steepest which is admissible in providing facilities for cross-traffic; (2) that the gradient of Wellington-street is 1 in 23, the east side of Trafalgar-square 1 in 23, the Haymarket 1 in 34, and Piccadilly near Half Moon-street 1 in 27; (3) the minimum safe headway for a bridge is 16 ft. to 17 ft., and that for a bridge over such a thoroughfare as the Strand a headway of not less than 18 ft. should be adopted; (4) if the width between the parapet girders of a bridge were 30 ft., a depth of 2 ft. 6 in. would be the minimum in which a satisfactory structure could be obtained; (5) that it is not practicable to make the depth of construction for the carriageway only a few inches.

The Chief Engineer, in dealing with the suggestion for the construction of a subway to meet the cross-traffic at the junction of the Strand with Wellington-street and of Holborn with Southampton-row, has pointed out that the scheme already sanctioned by Parliament for the construction of a shallow underground tramway from Theobalds-road along the new street to the Strand, would make the construction of a subway for ordinary vehicular traffic impracticable, and that it would also be impracticable to find space for the approaches to a bridge over Holborn in consequence of the tramway subway scheme, where it will come to the surface in Southampton-row. If a bridge with inclined approaches were constructed from Wellington-street to Waterloo Bridge, it would be necessary to remove the western steps of Waterloo Bridge and to carry the approach to the first abutment of the bridge, with the result that even then the gradient would be as steep as 1 in 20. This could be improved to 1 in 30 if the inclined road were extended a considerable distance on to Waterloo Bridge, involving a widening of the northernmost span of the bridge. This widening could not be carried out by merely widening the arch, but would necessitate a girder span over the Victoria Embankment, unless the bridge were widened for its entire length across the river. It would be necessary to widen Wellington-street, and to place the inclined approach in the middle of the widened thoroughfare, because if the inclined approach were placed on one side of the street, one line of the traffic using the approach would, upon reaching Waterloo Bridge, have to cross one line of the traffic passing on a level to the Strand, with the result that the construction of the bridge would do little more than tend to remove from the Strand the congestion caused by cross traffic to the point where the inclined approach delivered on to Waterloo Bridge.

To construct a subway for general traffic from Southampton-row under Holborn would not only involve considerable interference with the projected tramway-subway scheme, but would also make it necessary either to syphon the Fleet sewer in

Holborn or to divert the sewer at considerable expense. The gradients of such a subway would be about 1 in 17 on the north side of Holborn, and about 1 in 25 on the south side, whilst if a bridge were constructed the gradients would be 1 in 29 on the north of Holborn and about 1 in 17 on the south.

With these particulars before us, supplied by the Joint Sub-Committee, we feel that we have no alternative at the present moment but to advise that the question of the construction of a subway or bridge at the junction of the Strand with Wellington-street and at the junction of Holborn with Southampton-row should be postponed until after the formation of the new street from Holborn to the Strand, when we shall be in a position to decide as to the necessity or otherwise of the construction of a bridge or subway, having regard to the effect of the formation of the new street upon the general traffic, and also the effect of the working of the tramway subway from Southampton-row to the Strand.

We are of opinion, however, that the general question raised in the Council's resolution of January 21, 1902, should be borne in mind, so that whenever we are contemplating the widening of main thoroughfares or the construction of new streets, consideration may be given to the question whether, in connexion with any such improvements, some arrangement may be made for the relief of the cross-traffic. Our recommendations, suggested by the Joint Sub-Committee, are accordingly as follows—(*a*) That the consideration of the question of the construction of a subway or bridge at the junction of the Strand with Wellington-street, and at the junction of Holborn with Southampton-row, be allowed to remain in abeyance until after the formation of the new street from Holborn to the Strand, when it will be possible to ascertain the effect of the construction of that street upon the general traffic, and also the effect of the working of the tramway subway from Southampton-row to the Strand.

(*b*) That it be an instruction to the Improvements Committee to bear in mind the general question raised in the Council's resolution of January 21, 1902, whenever the widening of main thoroughfares or the construction of new streets is in contemplation, so that consideration may be given to the question whether, in connexion with any such improvements, some arrangement may be made for the relief of the cross traffic."

Bermondsey Abbey.—The Historical Records and Buildings Committee reported that during the recent excavations made in connexion with the erection of working-class dwellings by the South-Eastern Railway Company on land belonging to the Council in Abbey-street, Bermondsey, some interesting discoveries were made of the remains of Bermondsey Abbey. Several additional portions of the old masonry were also obtained from a wall near the White Bear public-house. A few bronze coins, a token dated 1665, and a broken crucible containing glass, had also been found. The remains had been removed to the Horniman Museum.

The Report was received.

Hours of Keeping Open District Surveyors' Offices.—The Building Act Committee reported as follows :—

"By the regulations which were made by the Council on July 1, 1890, relating to the appointment of District Surveyors, every District Surveyor appointed since that date is required to keep his district office open on Saturdays until 2 p.m. We recently received an application from a District Surveyor for permission to close his office at one o'clock on Saturdays, and although there did not appear to be any objection to the application being granted, we were of opinion that, if the surveyors affected by the regulation were in favour of the time being changed, it would be advisable to recommend the Council to alter the regulation rather than for us to assent to a departure from it in particular instances. We accordingly caused the District Surveyors concerned to be communicated with, and as the result all but one have informed us that, in their opinion, no inconvenience would be caused to the public if the hour of closing districts offices on Saturdays were changed to one o'clock. We recommend—That the following be substituted for paragraph (*e*) of the regulation relating to the appointment of District Surveyors—That he will keep his district office open from Monday to Friday (both inclusive), between the hours of 9.30 a.m. and to 5 p.m., and on Saturdays from 9.30 am. to 1 p.m., and give his personal attendance there daily from 9.30 to 10.30 a.m."

Mr. Bruce asked if District Surveyors were able to charge in the case of small internal alterations half the fee which would be charged in the case of a new building? A recent charge worked out at about 1*l.* per minute and about 25 per cent. of the whole alteration.

Dr. Longstaff said he believed the facts were so, and the charges were made under a schedule of Act of Parliament.

Mr. Bruce : Can we get that altered?

Dr. Longstaff : I see no prospect of altering it. Although District Surveyors have the power to charge so, they generally take much less.

The Council adjourned shortly after 7 o'clock.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Lines of Frontage and Projections.

Hampstead.—That the application of Mr. J. F. Bell, for an extension of the period within which the erection of a block of residential flats on the northern side of Finchley-road, Hampstead, at the corner of Heath-drive (late West Hampstead-avenue) was required to be commenced be granted.—Agreed.

Lewisham.—The retention of a water-closet addition at the rear of No. 4, Halesworth-road, abutting upon Shell-road, Lewisham (Messrs. Hodson & Whitehead for Messrs. Hodson Bros).—Refused.

Width of Way.

Southwark, West.—Completion of a building commenced to be erected on a site abutting upon Kell-street, Earl-street, and Dantzic-street, Southwark (Mr. W. Downs for Messrs. R. Hoe & Co.).—Consent.

Space at Rear.

Clapham.—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of seven blocks of buildings on a site abutting upon Clapham Park-road, Abbeville-road, and Park-place, Clapham, with an irregular open space at the rear (Mr. R. C. Overton for Mr. E. Messiter).—Consent.

Formation of Streets.

Clapham.†—That an order be issued to Mr. J. Cobeldick refusing to sanction the formation or laying out of new streets for carriage traffic on the Heathfield estate, West-side, Clapham-common, Clapham.—Agreed.

Norwood.—That an order be issued to Messrs. R. Ellis & Son refusing to sanction the formation or laying out of new streets for carriage traffic on the Sanders estate on the south-east side of Coldharbour-lane, Brixton, for Mr. R. A. Sanders.—Agreed.

Height of Buildings, Cubical Extent, &c.

Fulham.—The erection at the Manbré Saccharine Works, Brandenburgh-road, Fulham, of buildings with (*a*) three blocks (Nos. 1, 2 and 5) each to exceed in extent 250,000 but not 450,000 cubic feet, and to be used only for the purposes of the macerating and treatment of maize in the wet state (*b*), a portion of block No. 1 to exceed in height the distance of such portion from the opposite side of Rannoch-street, and (*c*) external iron gangways and staircase to connect blocks Nos. 2, 3, 4 and 5.—Consent.

Means of Escape from Top of High Buildings.

Kensington, North.—Means of escape in case of fire proposed to be provided in pursuance of Section 63 of the Act, on the seventh and eighth stories of Lansdowne House, Lansdowne-road, Kensington (Mr. W. Flockhart for Mr. E. Davis).—Consent.

*** *The recommendation marked* † *is contrary to the views of the Local Authority.*

THE LONDON BUILDING ACT, 1894 :

TRIBUNAL OF APPEAL CASE.

THE Tribunal of Appeal under the London Building Act sat at the Surveyors' Institution on Tuesday to hear an appeal by the Hon. Sydney Holland on behalf of the Governors and House Committee of the London Hospital, against the disapproval by Mr. Arthur Crow, District Surveyor for Whitechapel, of works proposed to be carried out at the East wing of the London Hospital, and his requirements in relation thereto, under Section 78 of the Act.

The members of the Tribunal sitting were Messrs. Penfold (Chairman), Hudson, and Gruning.

The case for the appellants was conducted by the Hon. S. Holland in person, and the respondent was represented by Mr. Andrews, from the Solicitor's Department of the L.C.C.

According to the opening statement of Mr. Holland, the appeal was from an order made by the District Surveyor to strengthen certain piers to the east wing of the hospital on the ground that the existing external walls are in places out of the upright and insufficient to support the additional load of the proposed extra stories, concrete roof, and water tanks. The requirement of the District Surveyor was that against each of the twenty piers buttresses, 4 ft. 6 in. wide, and ranging in projection from 1 ft. 11 in. to 9 in, should be built. The appellant contended that this was unnecessary, and that, in fact, the wall is good and sound and fit to bear the superstructure. The history of the case was this: the London Hospital contains nearly 800 beds, not one of which can be spared. Any work that is necessary has therefore to be done a floor at a time. When it was decided to improve and heighten this wing, the appellants' architect (Mr. Rowland Plumbe, F.R.I.B.A.) proceeded to carry out the necessary works to the basement, and prepared drawings showing what he thought would be necessary in carrying the walls down by underpinning in concrete to the solid gravel. Drawings of these works were submitted to Mr. Crow in October, 1901. The appellant's architect met the respondent the same month, and had many interviews with him in reference to the work that was required to be done to the basement walls, and all work necessary to be done was carried out under the respondent's superintendence and to his satisfaction. The respondent objected that the middle wall of the wards was not thick enough, in view of the large openings cut in it, and also in view of the weight of the extra stories with the water tanks and concrete. Ultimately it was arranged to build into this wall steel riveted stanchions, which would take the main girders on each floor—both those existing and those to be fixed. The wall was examined, and found to be upright, and at the respondent's request the external walls were tied to the cross-beams by means of substantial wrought-iron anchors. In discussing the strength of these walls, a drawing was submitted to the respondent showing that on one floor the thickness of the wall hardly agreed with the thickness required for warehouse walls under the schedule of the Act. Although there is nothing in the Act requiring such walls to be of the thickness of the warehouse class, Mr. Plumbe offered to thicken them, but after discussion the respondent thought it was not necessary. The work went on, and was continued as far as the first floor, and the three lower floors are now in occupation. There was considerable discussion from time to time as to the walls, and calculations were gone into showing the weight which would come upon them. On May 24 the respondent wrote to this effect: "I shall not now raise any further objection to the work being executed to this block in accordance with the drawings which you have sent me," and stipulated that all defective work to the old walls should be cut out and made good. In the following June the respondent wrote that, while he was not wishing in any way to open the question, he asked for diagrams showing the plumbing of the walls. The appellant's architect, in the meantime, had offered to pull down the top portion of the walls to the springing of the second floor window arches, and, if found necessary, when the work was being pulled down, to demolish such of the second-floor parts as were found to be defective. The plumbings were sent to the respondent, and it was not until September 4 that the respondent wrote demanding that enormous buttresses should be built against the outside piers to strengthen them, with the object of giving the appellant's architect an opportunity of appealing to the Tribunal in the event of his disagreement with the respondent's views. This letter was withdrawn in consequence of the holidays and the absence of the Hospital authorities, and a formal notice served upon the Governors of the Hospital.

Mr. Holland complained that the respondent failed to make these demands at the time the works to the foundations were carried out, and although a large amount of work had been done, only made these demands within the past few weeks, and that 1,000*l.* would be necessary to carry them out. Mr. Holland submitted that the respondent's demands were due to an excessive nervousness, and, although the appellants were willing to meet any reasonable demand, they could not acquiesce in that which they regarded as unreasonable.

Mr. Plumbe gave evidence that in his opinion the walls were amply strong enough for the two additional stories now being built, and he produced diagrams showing the plumbing of the walls, fully half of which were absolutely upright. Moreover, the walls were in excess of the thickness required by the Act, and the tying in of the walls had made them secure with regard to the south section of the east wing; the thickness of the wall as existing and proposed to be raised was at the basement 27 in. as compared with 21½ in. (and pier) required by the schedule, while on the ground floor the thickness was 22½ in., as against 17½ in. (and pier) and 21½ in. (and pier) required by Part 1 and 2 of the schedule respectively. On the fourth floor the thickness was 18 in., as compared with 13 in. and 17½ in. (and pier) of Part 1 and 2 of the schedule. The width of the pier at the basement was 7 ft., which compared with 5 ft. 6 in. required by the Act. Then in regard to weight, he stated that the total on each pier in tons at the basement was 78·5, the weight per foot superficial in tons being 5·6. On the ground floor the figures were 66·5 and 5·7 respectively, while on the fourth floor they stood at 17·6 and 1·8 respectively. The weights coming upon the walls were moderate in the extreme.

Mr. Andrews, for the respondent, pointed out that the District Surveyor, as a public officer, had a great responsibility in regard to public buildings. If he sanctioned plans which were defective and

anything happened, his responsibility would be held up against him. In the present proceedings, therefore, he recognised that the Tribunal was taking upon itself the responsibility attaching to the plans. The grounds upon which his refusal to pass the plans were based were that recent settlements had taken place in the main building, that the walls were out of plumb and the axis of pressure was not coincident with the axis of resistence; the failure to take out the old piers, as suggested to Mr. Plumbe in May. Further, it was the duty of those who proposed to put an additional two stories with water-tanks on top of the roof to show that the walls were sufficiently strong to bear the weight.

Mr. Crow then gave evidence. He stated that from an inspection he made of a section cut out of the east wall of the basement of the north section in the early part of the summer he found certain defects in the construction of the brickwork. There was a larger percentage of bats than there should be. Many of the bricks were not "good, hard, sound and well-burnt," such as would be required in the present day for external walls. Likewise, the bonding was not at all well done; in many places there were false headers. The bond was English, with Flemish facings externally. He produced a sketch showing the interior of the wall as disclosed by the cut out of the section. Both the east and west walls of the northern section were bulged on a level with the first floor window arches, and overhanged to the following extent:—East wall: First pier from north end, $2\frac{3}{8}$; second pier, $3 + \frac{1}{4} = 3\frac{1}{4}$; third pier, $3 + \frac{1}{4} = 3\frac{1}{4}$; fourth pier, $2\frac{3}{4} + \frac{5}{8} = 3\frac{3}{8}$; fifth pier, $2\frac{1}{4} + \frac{1}{8} = 2\frac{3}{8}$. West wall—first pier from the north end, $\frac{1}{2}$; second pier, $1\frac{3}{4}$; third pier $1\frac{1}{2} + \frac{1}{8} = 1\frac{5}{8}$; fourth pier, $1\frac{1}{4} + \frac{1}{2} = 1\frac{3}{4}$; fifth pier, $\frac{3}{8}$. In addition to this both walls appeared to lean over badly to the east in the centre. The East London Railway passed underground in close proximity to the north-east corner of the building. He quoted from "Hurst's Architectural Handbook" as to the weight per foot super at which fracture commences for brick piers not 12 diameters in height and referred to certain tests carried out by the Science Committee of the Royal Institute of British Architects from 1896 to 1898, the result of these being to show that the average load at which fracture commenced was 10·08 tons per square foot. This result gave a safe working load of 2 tons per square foot, whereas, according to the figures supplied by the appellants, the load was to be about 6 tons per square foot.

In cross-examination Mr. Crow stated that since he dealt with the matter in May circumstances came to his knowledge with regard to the main block, and the effect of the increased weight being put upon the foundations there made him hesitate to accept the responsibility with regard to the east wing.

The Tribunal adjourned the further hearing of the appeal, and to enable them to view the *locus in quo*.

PLUMBERS' REGISTRATION:

DEPUTATION TO LOCAL GOVERNMENT BOARD.

THE President of the Local Government Board Mr. Walter Long, received a large and influential deputation on Thursday, the 6th inst., in support of the Plumbers' Registration Bill. All the chief cities and towns of the United Kingdom were represented, also the following bodies:—The British Medical Association, the Royal Institute of Public Health, the National Health Society, the Royal Institute of British Architects, the Birmingham, Tees Valley and Grand Junction Water Boards, the Metropolitan Boroughs, the Sanitary Committee of the Corporation of London, the National Association of Master Plumbers of Great Britain and Ireland, the United Operative Plumbers' Association of Great Britain and Ireland, the London Society of Associated Master Plumbers, the Central Registration Committee, and the Plumbers' Apprenticeship Board.

Sir Lewis McIver, M.P., introduced the deputation.

The Clerk of the Plumbers' Company explained the constitution of the deputation, and laid much stress upon its representative character. He also pointed out that more than one-half of the Members of the House of Commons had expressed their sympathy with the movement, either by their vote or by signing the petition which was presented some time ago to the Prime Minister, asking for facilities for the passage of the Bill.

Alderman Sir John Knill, Master of the Plumbers' Company, assured Mr. Long that the object of the deputation was not an individual one. It was to protect the public from defective sanitation. It was their desire that the Plumbers' Registration Bill should be pushed forward in the House of Commons as soon as possible. Already some 12,000 men were certificated. This fact was sometimes brought forward as an argument that registration was not essential, but as registration stood at present it was little or no protection to the public, because men used certificates belonging to others, and the Plumbers' Company had no control over them. They desired to protect the public against bad plumbing work and against scamped work, and to achieve that end they were determined to leave no stone unturned.

Mr. Harrison, President of the National Association of Master Plumbers of Great Britain and Ireland, expressed full concurrence with the action of the Plumbers' Company.

Mr. Collicutt, the representative of the United Operative Plumbers' Association of Great Britain and Ireland, said that he believed that the Bill would be beneficial not only to the public health, but also to the plumber himself, because it would distinguish the genuine plumber from the sham.

Dr. A. Hill, Medical Officer of Health, Birmingham, spoke of the movement for registration from the medical point of view, which he thought was the most important aspect.

Bailie Crawford, late Chairman of the Public Health Committee, Glasgow, and Warden of the Plumbers' Company, said that he had been associated with the movement for eighteen years, and he was convinced that the country desired to have the power of distinguishing between good and bad plumbers. They now found that they could not proceed further with the movement without the assistance of the Government. The Plumbers' Company had spent 30,000*l.*, and the plumbers themselves had contributed about 12,000*l.*, to carry out voluntary registration. They had brought in private Bills over and over again, they had petitioned, they had done everything that was lawful and constitutional, and they had had very considerable encouragement, but as yet they had not got their Bill, and they earnestly trusted that the Government would take it up.

Mr. Long, in reply, said that he hoped it was unnecessary for him to say that he entirely recognised the very influential and very important character of the deputation. He had been asked, in the first place, what was the view of the Local Government Board in regard to the principles of this measure. He had no hesitation in saying that they regarded the measure with hearty approval and goodwill. As it had been admirably put by one of the speakers, the object of the Bill was not to benefit a particular trade or industry, but it was to benefit the general community and to improve the condition of the public health. That was one of the objects for which the Local Government Board existed. He entirely believed that there was great room for improvement in regard to plumbing work. However great might have been the discoveries of science, and however anxious the householder might be to have the very best system of drainage in his house, science and the householder were defeated if the work was so carelessly or so badly done that all the appliances were rendered useless, and the diseases which they desired to prevent were just as rampant as if science had never made its discoveries. He took it from the deputation that they believed that these dangers to the public health would in a very large measure be removed if their Bill were passed into law. How did the Bill stand now compared with the position when in former times the matter had been brought before him? The deputation had reason to believe that the position had materially improved. In the first place, it was his duty on previous occasions to point out that there were certain parts of the Bill which he could not see his way to support. They had now removed those proposals, and, subject to one or two small matters of detail, there was nothing in the Bill now which his Department and the Government would find any difficulty in heartily supporting. Mr. Crawford had described the history and the present position of those who were interested in this movement, and he appealed to the Government to support them and help them out of their difficulties.

The practical question was, "How were they to accomplish their further steps?" They were now almost in sight of the gates of paradise, and they wanted to get these gates open. He should like to say that he personally regretted the present position of non-controversial legislation. There was no Department where there was so much need for departmental legislation as in the Local Government Board. During the twenty years he had been in Parliament there had been few sessions in which a number of Departmental measures had not been passed, but he now found it practically impossible to carry even the least of Departmental measures, and when he was asked to come to the assistance of this deputation, he was bound to ask whether he was able to comply with the request. He turned to the deputation, and he noticed with the greatest possible interest and hope that, not only was it representative of all parts of the country, but it was representative of the various Parties in the House of Commons. If the Members of Parliament present, drawn as they were from both sides of the House, had really come to support the movement, and would turn themselves into advocates and whips for the Bill in the House of Commons, then there would be no difficulty whatever in giving the Bill the sympathy and support of the Government and in passing it into law.

A vote of thanks to Mr. Long closed the proceedings.

SURVEYORS' INSTITUTION.—The President's prize for papers to be read at the junior meetings of the Surveyors' Institution has this year been awarded to Mr. G. P. Knowles, P.A.S.I., for a paper dealing with local government questions. Mr Knowles, who is a Surveying Assistant in the Architect's Department of the London County Council, won this prize last year also.

Correspondence.

WOODEN COTTAGES AND RURAL BY-LAWS.

SIR,—I am thankful for your protest last week (see p. 410 *ante*) against the absurd regulations which hamper building operations in rural places. Nothing but larger powers at Whitehall will relieve us, for though I have been four years fighting, single-handed, against the Dartford Authority, the Local Government Board are now only able to *advise*, not *compel*, the Dartford Council to act with common sense. I send you a local paper, that you may see the present stage of the prosecution against me for erecting the *most* convenient cottage in the parish.

Wherever Rural Authorities adopt the antiquated by-laws, and not the new Advisory Code of 1901, which was expressly framed by Whitehall to relieve Rural Districts, they virtually "hold a brief for the bricklayer." I would not speak disparaging of that most useful craftsman; but he has now become an expensive luxury, and you cannot construct a cheap cottage except with cheap muscle and material. These unsuitable by-laws are "in restraint of trade," for they discourage enterprise and invention. The moment a man contrives a cheap dwelling, down comes the law and forbids its erection!

The King of Scandinavia lives in a *wooden* palace. Every thrifty rural labourer ought to be able to construct a cottage for himself which would be a "palace" in comparison with the pigsties many have to put up with (unfortunately, the "*bottom* side" of the house is often the most difficult to contrive, but that is not a by-law question).

Sir William Chance, Orchards, Godalming, Surrey, President of the Poor Law Conference, writes in last week's issue of *Country Life* to advocate immediate formation of an association to further the work of reform, inasmuch as, single-handed, an individual cannot fight so successfully as an organised body. I certainly shall support his suggestion, and I hope, Sir, you will be kind enough to advocate it in the *Builder*. Then, perhaps, "slavery" will really become extinct in Britain.

E. D. TILL.

The Priory, Eynsford, Kent,
November 11, 1902.

CHEAP COTTAGES.

SIR,—I noticed in your last issue some remarks concerning workmen's dwellings in wood, and objections raised to them. Some years ago I was at the building of some houses which would serve exceedingly well, and still be cheap. A foundation was made of brickwork; also all fireplaces and flues; and wall-plates laid on brick foundations. Standards of wood were then placed to height of the walls required, let into the wall-plates, and placed, say, about 15 in. or 16 in. apart—of course, trimmed for doors and windows. The standards were 6 in. by $2\frac{1}{2}$ in. or 3 in., with a lath 3 in. in width nailed to each side of standard. These, when fixed in position, were lathed and plastered on each side, and filled in between with either sawdust or dried sand. When the plastering was hard enough the standards were lathed on each side—inside, of course, the same as any ordinary room; outside mortar was gauged with Portland, and then rough-cast while in the soft state, which makes the work durable, and looks well if properly done. The roofs were covered with shingles instead of slates, both cheaper and lighter. The shingles were cut about 16 in. to 18 in. by about 11 in. or 12 in. wide, and put on exactly like slates.

I think houses of this description, if passed, would make good, cheap, and warm houses for workmen. I have seen a hotel in Scotland done on this principle. They look as well as any cemented front if the rough-casting be properly done, and durable into the bargain.

G. R. M.

QUICK WORK.

SIR,—There has been considerable writing during the year to some of the daily and other newspapers tending to the disparagement of English methods of work, especially with regard to the speed of production of the materials for and the erection of buildings. There are few who considered these criticisms entirely just, but as an example of what is accomplished by English organisation, direction, control, and labour, when allowed free exercise, we should be obliged by your inserting this letter, giving a general record of work performed within our own immediate knowledge in this city, and under normal conditions of wages, &c.

We are the tenants on lease of a seven-storied warehouse at 9, Portland-street, Manchester. The building covers about 1,000 square yards of land, and has frontages to three streets. The premises were recently so badly gutted by fire that only one of the outer walls was undamaged. Two of the other fronts had each to be taken down 15 ft. for the sake of safety, and the fourth side wall had to be taken down 50 ft. and re-erected.

The building is one of the best class of Man-

chester home trade warehouses, constructed of iron columns, steel beams, and joisted floors. The fire caused so much damage that the whole internal work had to be cleared out, and complete reinstatement made from basement floor to roof.

The fire took place on July 24, 1902; the insurance company, the owners, and ourselves the tenants appointed Messrs. Charles Heathcote & Sons, of Manchester, the architects for the reinstatement.

Quick reconstruction was desired by each interest involved. The Law Union and Crown Insurance Co. were very prompt in settlement of their position, and on September 3 instructions were given to the architects to proceed with placing the contracts. Accordingly, on September 3 the orders for the preparations and erection of the steel and iron work were given out to Messrs. Skipworth & Jones, engineers, Manchester, and the contract for the remainder of the work put in the hands of Messrs. R. Neill & Sons, builders, Manchester, on September 8.

The whole of the cast-iron columns, steel beams, and floor joists of seven floors (in addition to other portions of the work) and also the iron principals of the roof, were fixed in position by October 29.

Thus all this constructive work of a large seven-storied warehouse has not only been erected but prepared in eight weeks, and of excellent quality and perfect construction.

This splendid progress has given us such satisfaction, and is so creditable to workmen and contractors and to the superintendence and organising skill of the architects, that we consider such should have, if possible, at least a part of the publicity which has been given to statements suggestive of slackness in our English "methods."

(For George Peak & Co., Ltd.),
JOHN KENDALL, Chairman.

November 6, 1902.

*** We have pleasure in publishing a letter which is creditable both to the writers and to those in whose favour they bear witness. At the same time we may repeat what we have often said before, that building against time, however it may be necessary under some circumstances, is not the way to secure either the best architecture or the best building.—ED.

COMPETITIONS.

NEW HIGHER ELEMENTARY SCHOOL, FINCHLEY.—In response to an invitation issued by the Finchley School Board, eleven selected architects submitted designs for the higher elementary school proposed to be built by the Board. Mr. Thomas E. Colcutt, F.R.I.B.A., the assessor, having made his award, the sealed letters accompanying the plans were opened, when it was seen that the first premium had been awarded to Mr. W. G. Wilson, A.R.I.B.A., Bloomsbury Mansion, Hart-street, W.C.; the second to Mr. G. E. T. Lawrence, A.R.I.B.A., Chandos Chambers, Strand, W.C.; and the third to Messrs. Mitchell & Butler, 16, Finsbury-circus, E.C. In terms of the conditions issued to the competitors the Board have instructed Mr. Wilson to proceed with the work.

The Student's Column.

THE CHEMISTRY OF BUILDING MATERIALS.

19.—FIXED OILS—FATS—LUBRICANTS.

FIXED OILS are those which, like linseed oil or olive oil, do not volatilise appreciably at ordinary temperatures, and which cannot be distilled because they undergo decomposition when heated to boiling point. *Volatile oils* are those oils which evaporate when exposed to the atmosphere, and can be distilled without decomposition. Spirits of turpentine or "turps" is a volatile oil, and the various plant essential oils are volatile oils. The volatile oils are not true oils, and are very different in their chemical character from the fixed vegetable oils. *Mineral oils*, such as petroleum and shale oil, are mixtures of hydrocarbons, and do not, like the fixed vegetable and animal oils, contain oxygen. The group of compounds in which the mineral oils are classified is totally different in every way from that in which the fixed vegetable and animal oils are included. Animal *fats* are grouped with the fixed vegetable oils because they are of very similar chemical composition and have similar properties.

Saponification.—When fixed oils or fats are boiled with caustic soda solution the oil or fat is decomposed into *glycerine*, which remains in solution, and into fatty acids, which unite with the soda to form solid *soap*. Fats may also be converted into glycerine and fatty acids (stearic acid, palmitic acid, &c.) by distillation with steam alone. Mineral oils cannot be saponified. Commercial glycerine sometimes consists of glycerine recovered as a by-product in soap manufacture.

Classification of Fixed Oils.—Fixed oils may be divided into the following three classes:—

1. Drying oils.
2. Semi-drying oils.
3. Non-drying oils.

There is, however, no sharp line of demarcation between the drying and non-drying oils, for the one class gradually merges into the other, and some of the non-drying oils may be converted into drying oils by special treatment.

Drying Oils, when exposed in thin films to the atmosphere, solidify in the form of a skin, which is usually more or less elastic. Drying oils are valuable for the manufacture of paints, but useless as lubricants. The drying oils include linseed oil, Chinese or Japanese wood oil, poppy-seed oil, walnut oil, and hemp-seed oil.

Semi-Drying Oils become viscid when exposed to the air, but never perfectly dry. These oils are not the best for paints or for lubricating, but are frequently used for both purposes. Cotton-seed oil is one of the most abundant of these semi-drying oils, and is frequently used as an adulterant in paint oils; while castor oil, which is another semi-drying oil, is often used as a lubricant.

Non-Drying Oils are valuable as lubricants, but useless for paints. Among the non-drying oils are olive oil, sperm oil, lard oil, colza oil, and rosin oil.

Linseed Oil is the oil most extensively used in this country for the manufacture of paints. It is used in both the "raw" and "boiled" form. Raw linseed oil is obtained by pressing the seeds of the common cultivated flax (*Linum usitatissimum*). When the raw oil is heated by itself or with "driers" a product termed "boiled oil" is obtained. The largest supplies of linseed come from Russia and India, but flax is also extensively cultivated in Ireland, Belgium, Holland, and America. The fibre of the plant is used for the manufacture of linen, while the oil from the seeds is chiefly used for the manufacture of paints, varnishes, and printing inks. The quality of the oil is largely dependent upon the locality in which the plant was cultivated. The oil pressed from Russian seed is usually the best, while that which comes from East India is inferior. Russian seed is usually imported in a cleaner and purer condition than that from India. The presence of the seeds of weeds or plants other than the flax, if they yield non-drying oils, reduces the value of the linseed oil.

Raw oil may be obtained from linseed by pressing the cold seed, by pressing the hot seed, or by dissolving the oil out of the seed by means of carbon bisulphide and subsequent distillation to separate the oil from the carbon bisulphide. The oil in the seeds varies from 28 to 45 per cent., but only about 20 per cent. is extracted by cold pressure, 27 per cent. by hot pressure, and 33 per cent. by carbon bisulphide. The best oil is obtained by cold pressure, but most of the oil of commerce is obtained by pressing the heated seed.

Properties of Linseed Oil.—The most important property of linseed oil is its power of absorbing oxygen from the atmosphere when exposed in thin layers and becoming transformed into a solid elastic skin. The raw oil has a yellowish-brown colour, and is soluble in turpentine, petroleum spirit, shale naptha, or choloroform. It dissolves in about forty times its own volume of alcohol at ordinary temperatures, but is more soluble in hot alcohol.

Boiled Oil.—The drying power of linseed oil may be increased by heating it to about 350 deg. Fahr., while a stream of air is blown through it. A small quantity of "driers" (red lead, acetate of lead, manganese borate, or some other suitable metallic compound) is usually added. The proportion of "driers" commonly employed is ½ lb. to 1 lb. of driers for every 1 cwt. of oil. Air is blown through the heated oil for six or seven hours. This so-called "boiled" oil dries in from twelve to twenty-four hours when exposed to the atmosphere in a fine film, whereas the raw oil when exposed in the same manner requires exposure for two or three days before it becomes dry. Linseed oil begins to boil at about 500 deg. Fahr., but it simultaneously undergoes decomposition, and it is not, therefore, practicable to boil linseed oil in the true sense of the term.

Boiled oil is not suitable for use by itself as a paint oil; for, although it dries quickly, it forms a brittle coat which is liable to crack. By using a mixture of boiled oil and raw oil the paint dries more rapidly than when raw oil alone is used, and yet dries with a sufficiently elastic skin. Several methods of preparing boiled oil are in vogue, but the process described is that most commonly adopted.

Adulterants.—Both raw and boiled linseed oil are commonly adulterated with rosin oil or mineral oil. Less frequent adulterants are fish oil and the oils from cotton-seed, mustard-seed, hemp-seed, poppy-seed, and rape-seed.

Poppy Oil is obtained from the seed of the opium poppy (*Papaver somniferum*) by pressure. It has a faint yellow colour, but may be completely decolourised by filtration through charcoal. The oil is almost tasteless and odourless. It dries less rapidly than linseed oil, but on account of its freedom from colour, has been extensively used by artists as a vehicle for pigments of a white or pale colour. The usual adulterant is cotton-seed oil, but other cheap oils of light colour may be used.

Nut Oil or *Walnut Oil* is obtained from the peeled kernels of the common walnut (*Juglans regia*). It is a drying oil, and must not be confounded with the non-drying nut oils. It has a pale yellowish-green colour, but can be bleached. Walnut oil much resembles linseed oil in its properties, and dries quite as rapidly. It is more costly than linseed oil, and is principally used for artists' colours. It has an agreeable smell and nutty flavour. When the walnut kernels are not peeled, but stored for two or three months and then crushed without peeling, they yield 25 per cent. of oil called "Virgin Nut Oil," which is used as an edible oil, and sometimes as a substitute for linseed oil.

Second quality nut oil is obtained by grinding with hot water the residue left after extracting the "virgin oil," and then again pressing it. The oil obtained by this second extraction is of inferior quality, and has an acrid taste. It is used as a paint oil. The commonest adulterants are linseed oil and poppy oil.

Hempseed Oil is a drying oil, much used as a paint oil in Russia and other places, where the hemp plant (*Cannabis sativa*) is extensively cultivated. It is not much used in England, as it is more costly than linseed oil. It has a somewhat unpleasant taste and odour.

Wood Oil (Chinese or Japanese), or *Tung oil*, is an oil which drys even more rapidly than linseed oil. It is obtained by pressing the seeds of the oil tree (*Elæococca vernica*). The tree is known as the tung tree, or tong yeou, and is grown principally upon the banks of the Yangtsze, in China. The seeds yield about 35 per cent. of their weight of oil. The oil is colourless and odourless, but when exposed in a thin layer to the atmosphere forms a skin which is duller, more wrinkled, and more opaque than that formed by linseed oil. If the oil be first heated with a little litharge, the dry skin will be transparent instead of possessing a milky opaqueness, but will still retain a slightly wrinkled surface. Wood oil, when heated to 212 deg. Fahr. for several days, slowly gelatinises. When heated to about 550 deg. Fahr. the oil is at once transferred into a transparent jelly, which is insoluble in spirits of turpentine or any of the usual solvents, whereas the raw oil is soluble in any of them.

Cotton-seed Oil is a semi-drying oil obtained by refining the oil extracted from the seed of the cotton plant (*Gossypium barbadense*). It is so cheap that it is not often adulterated, but is largely used as an adulterant for more costly oils. It is not very suitable for lubricating, because it has a tendency to become sticky; nor for use in paints, because it does not dry sufficiently rapidly or completely. It is used in cooking, soap-making, and in the manufacture of butterine.

Castor Oil is a semi-drying oil often used as a lubricant. It is extracted from the heated seed of the castor oil plant by pressure, unless required for medicinal purposes, when the seed is pressed cold. Castor oil differs from other oils in being completely soluble in alcohol.

Rosin Oil is a non-drying oil obtained by distilling rosin in cast-iron stills. It is dark brown or pale yellow in colour, according to the refining treatment to which it has been subjected. When fresh the rosin oil is fluorescent, but upon exposure to light and air, or to the action of oxidising substances, the fluorescence disappears. Rosin oil is used as a lubricant and as a constituent of varnishes,

printers' inks, train oil, and soap. It is also commonly used as an adulterant in more costly oils. Rosin oil is not saponifiable. It is soluble in alcohol or glacial acetic acid.

Colza Oil or Rape-seed Oil is a non-drying oil obtained from the seeds of various species of Brassica. Colza oil is liable to have an acid reaction owing to the decomposition of the albuminous matter it contains. It is often purified with sulphuric acid, which tends to increase the acidity of the oil by decomposition of the glycerides, and also because it is difficult to remove the last traces of the sulphuric acid from the oil. Colza oil is yellow or brown in colour. It is used as a lamp oil, and also in the manufacture of indiarubber, and as a lubricant.

Olive Oil, *Salad Oil*, or *Sweet Oil* is a non-drying oil obtained from the fruit of the olive tree (*Olea Europœa sativa*). The best quality oil is obtained by hand pressure, but inferior qualities are obtained by pressing the heated fruit by machinery. It is too expensive to be largely used in this country as a lubricant, and is apt to decompose and acquire an acid reaction. It is frequently adulterated with cheaper oils. It is principally used for cooking and wool-dressing.

Palm Oil is a fat varying in consistency from that of vaseline to that of hard tallow, and is obtained from the fruit of palms (*Avoira elais* or *Elais guineensis*). It has a yellow colour, and, as it often contains free fatty acid, is liable, if used alone, to have an injurious effect upon metals. Palm oil is largely imported into England from the West Coast of Africa for the manufacture of railway grease, soaps, and candles.

Mineral Oils are non-drying oils composed of a mixture of hydrocarbons which are usually of the paraffin series. Vaseline, petroleum jelly, and petroleum residuum are semi-solid products obtained from petroleum after the lighter portions have been separated by distillation. The mineral oils of commerce are derived either from the natural petroleum found abundantly in the United States and in Russia, or by the distillation of shale. The lighter distillates obtained from these natural oils are used for illuminating purposes, while the heavier portions, having higher boiling points, are used as lubricating oils, and for the adulteration of linseed and other more costly oils.

Tallow is usually either mutton or beef fat, but other animal fats are sometimes sold as tallow. Tallow is a mixture of stearine, palmitin, and olein, and sometimes has an acid reaction owing to the formation of oleic acid during the process of melting to which the tallow is subjected in order that the fat may be separated from the organic tissue. Palmitin and stearine are solid at ordinary temperatures, while olein is liquid.

Tallow Oil is an oil obtained by subjecting tallow to pressure, and consists mainly of olein.

Neatsfoot Oil is obtained by boiling the feet of oxen with water.

Sperm Oil is a non-drying oil obtained from the spermaceti whale. It is a pale yellow fluid of low viscosity, and is very serviceable as a lubricant for light machinery. The crude oil contains a wax-like substance called "spermaceti" which has to be separated by cooling the oil and filtering it as soon as the temperature has become sufficiently low to cause most of the spermaceti to solidify. *Bottlenose oil* is obtained from the bottlenose whale, and closely resembles sperm oil.

Solid Lubricants.—Graphite is the principal solid lubricant, but powdered soapstone mixed with oil is sometimes used.

Grease. — The greases used for railway wagons and for lubricating work of a similar character are manufactured by mixing various oils with soaps and fats with the aid of steam heat. H. J. Phillips states that the average percentage composition of good yellow and black grease respectively is as follows :—

	Yellow Grease.	Black Grease.
Water	37	25
Tallow	30	17
Palm oil.....	10·5	4
Soap (containing 30 per cent. water)	21	13 5
Petroleum residue	—	40
Soda ash	1 5	1·5
	100·0	101 0

The following table enumerates the lubricants commonly employed for different kinds of machinery :—

Machinery.	Lubricants.
For steam cylinders,	Heavy mineral oils, lard, tallow.
Ordinary machinery,	Tallow oil, lard oil, heavy mineral oil, rape oil.
Very heavy pressures with slow speed,	Graphite or soapstone.
Heavy pressures with slow speed,	Tallow, lard or other grease.
Heavy pressures with high speed,	Sperm oil, castor oil, rape oil, heavy mineral oil.
Light pressures with high speed,	Sperm oil, refined petroleum, cottonseed, olive, or rape oil.
Watches, clocks, &c.,	Light mineral oils, sperm, porpoise, or olive oil.

Specific Gravities of Oils.—The following table shows the normal specific gravities of the principal commercial oils. The determination of the specific gravity is one of the tests usually made when examining an oil for the presence of an adulterant :—

Oil.	Specific Gravity at 60 deg. Fahr.
Castor oil	·961 to ·965
Cod-liver oil	·915 to ·929
Cotton-seed oil	922 to ·932
Hempseed oil	·925 to ·931
Linseed oil, raw	·932 to ·936
,, boiled... ...	·940 to ·960
Mineral lubricating oils ...	·850 to ·925
Olive oil	·914 to ·918
Palm oil	.920 to ·927
Poppy oil	·924 to ·926
Rapeseed oil (colza) ...	·914 to ·916
Rosin oil	·973 to ·981
Sperm oil	·881 to ·882
Walnut oil	·925 to ·928
Wood oil	·938 to ·940

GENERAL BUILDING NEWS.

CONVENT CHAPEL, HARROW.—A chapel has just been completed in connexion with the recently built Convent of the Visitation Nuns on Sudbury Hill, Harrow. The chapel, which is attached to the convent, is of red brick, with external stonework of very hard Bath stone, that used in the interior being of a finer character. The whole of the arches, pillars, windows, doorways, and piers of the building are made of this material, the intervening space being covered with plaster. The style is fifteenth-century Gothic. The length of the chapel, which is built in three parts—the sanctuary, nuns' choir, and externs' chapel—is 62 ft., width 28 ft., while the octagonal turret, which contains the bell, is 75 ft. high. The floor of the sanctuary is composed of squares of black and white Belgian and Sicilian marble respectively. The high altar consists of a block of green Grecian marble. Mr. Thomas Garner, of London, was the architect. Some of the carved work was entrusted to Messrs. W. Wilmut & Sons, of Bristol.

CHURCH HOUSE AND HALL, ASHINGTON, NORTHUMBERLAND.—The new church house and parish hall, erected in connexion with the Ashington Parish Church, have just been opened. The hall is constructed of white brick, with stone facings, and will accommodate 250 people. It will be heated throughout by Dinning & Cooke's hot-water system. Sunday-school classes and church entertainments will be held in the hall. Adjoining the hall, a house consisting of eight rooms has been built for the curate. The buildings have been erected from plans by Mr. Charlton, of the Colliery office, Ashington. Messrs. Gibson Bros., Newbiggin, were the contractors.

METHODIST CHURCH, SUTTON COLDFIELD.—A new Methodist church is being erected at Sutton Coldfield. The completed design for this church will accommodate about 525. The plan is cruciform, and consists of porch, outer and inner lobbies, nave, aisles and transepts, chancel, organ chamber, and vestries. The total length is 103 ft. The width of the transepts is 54 ft. The width of the nave and aisles is 34 ft. The lighting is by means of the aisle windows, clearstory, and the windows to transepts, and by large traceried windows over the western entrance and at the end of the chancel. A square central tower will be built at the junction of the nave and transepts, and carried up to a height of about 70 ft. The roof is of open timber, of the hammer-beam type, and flat over the greater portion of the area. The exterior of the church is of Northamptonshire stone, from the Weldon Quarries. The roofs are to be covered with stone shingles from Colley Weston. The nave and south transept only are being proceeded with at present, and the accommodation in this portion is for about 250. The completed scheme will provide a school for about 300 scholars, with a number of classrooms, and a church parlour. The architects are Messrs. Crouch & Butler, of Birmingham; and the builders are Messrs. James Smith & Sons, also of Birmingham.

RESTORATION OF WREXHAM CHURCH.—On the 3rd inst. the Bishop of St. Asaph dedicated the restored Yale porch of Wrexham Parish Church, and the door which has been erected to the memory of the late Duke of Westminster. The porch was restored by the graduates of Yale University on the 200th anniversary of the founding of Yale College, in recognition of the bounty of Elihu Yale, formerly a resident of Wrexham. Yale's tomb is within six paces of the porch. The builders were Messrs. Thompson & Son, Peterborough; and the architect was Mr. Prothero.

CHURCH, NUNHEAD.—The foundation-stone of St. Silas Church, in Ivydale-road, Nunhead, was laid recently. The church will seat 700 when completed, and will cost, with fencing, about 10,000*l.* It is to be built of brick, with external facings of Kentish rag and Bath stone. The section which is being built now will accommodate 500 people, and will cost about 6,500*l.* Messrs. J. E. K. & J. P. Cutts are the architects, and Mr. J. Bentley the builder.

CHURCH BUILDING IN WALES.—The contract for the restoration of the Welsh Calvinistic Methodist church at Menai Bridge has been let to Messrs. R. & J. Williams, contractors, Bangor, at 2,139*l.*—The contract for the Welsh Wesleyan chapel at Menai Bridge is also being carried out from the designs of the same architect, Mr. Joseph Owen.—The Building Committee of the Welsh Calvinistic Methodist church proposed to be erected at Garth-road, Bangor, from the designs of Mr. Cubitt, London, at an estimated outlay of 10,000*l.*, opened the tenders on the 5th inst. Considerable interest was attached to the action of the Committee, local contractors having been debarred from tendering, it being set out that they had no experience in such work. The tenders opened being in excess of the estimate, the acceptance of any contract remains in abeyance.—*Liverpool Mercury.*

SCHOOL, INVERURIE.—The foundation-stone of the new Public School-buildings at Inverurie was laid recently. The new schools are situated to the rear of the United Free Church. The estimated total cost of the school amounts to 7 008*l.* 9*s.* 6*d.*, and that of the schoolhouse being erected adjacent 876*l.* 8*s.* 6*d.*, making an aggregate of 7,884*l.* 18*s.* The plans are by Mr. A. Marshall Mackenzie, architect, Aberdeen. The contractors are as follows :—For school—Mason, Mr. John Smith, Kintore; carpenter, Mr. John Watt, Inverurie; slaters, Messrs. George Currie & Co., Aberdeen; plasterers, Messrs. Rodger & Baxter, Aberdeen; plumbers, Messrs. James Laing & Sons, Inverurie; painters, Messrs. J. & S. Fyfe, Aberdeen; for iron railings, Mr. William Simpson, blacksmith, Inverurie; for laying out playground, Mr. William Duncan, contractor, Inverurie. For schoolhouse—Mason, Messrs. Paul & Ritchie, Inverurie; carpenter, Mr. John Buchan, Monymusk; slaters, Messrs. Currie & Co.; plasterers, Messrs. Rodger & Baxter; plumbers, Messrs. Laing & Sons; painter, Mr. J. Masson, Aberdeen.

ST. ANNE'S INSTITUTE, BIRKENHEAD. — This building, in connexion with St. Anne's Parish Church, was opened on Monday, the 10th instant. There is a hall about 54 ft. by 30 ft., and 18 ft. to ceiling, with a gallery at one end and three classrooms adjoining, 20 ft. by 18 ft. each, the whole of which can be thrown into one room so as to accommodate about 400 people on the ground floor and about eighty in the gallery. There is a gymnasium at back, 50 ft. by 18 ft. and 19 ft. high in centre, with a kitchen between it and hall for teaching cookery. The hall has two cloakrooms at front and two retiring-rooms and platform or stage at the other end, with space under for storing of forms and chairs. The heating is by hot water from boiler in basement. There is a playground with the necessary conveniences. The whole has been built with bands and dressings of terra-cotta and red brick by Mr. James Merritt, builder, of Birkenhead, under the supervision of Mr. James W. Crofts and Mr. Charles Wise, of Liverpool, who have acted as joint architects. The cost of the building was about 2,400*l.*

NEW SCHOOLS, HANWELL.—The St. Ann's schools, Springfield-road, Hanwell, comprise three distinct blocks. A school for boys and girls on one hand, an infants on the other, with the school boards' offices and caretakers' house between the two. The buildings will accommodate 1,230 children, in two departments of one story, viz : A senior mixed school, consisting of twelve classrooms grouped round a central hall, and an infants' department as a separate building. The site on which the schools are erected was formerly known as the "spring field" of about two and a half acres, and contained the famous St. Ann's well, which has now been drained, filled in, and covered over. The schools for 780 boys and girls, although designated a mixed school, is not strictly so, because the upper standards of boys and girls have separate and distinct classrooms, and it is only in the lower standards where the boys and girls are in mixed classes. The school is designed on the central hall plan, with twelve classrooms, six on either side of the hall, male and female teachers' rooms, stockrooms, boys' and girls' cloakrooms, lavatories, caretaker's sink; entrances are respectively provided at either end. All the classrooms are lighted by windows to the left hand of the scholars, and separated from the central hall by glazed screens. The central hall is

72 ft. long, 40 ft. wide, and 30 ft. high at the ceiling line, and has five open hammer-beam principals supporting the roof. The hall is lighted by windows in each gable end and by the glazed screens at the sides. In the basement under the cloakrooms at one end of this building a heating-chamber, coal and coke stores, a repairing shop, and general store for chairs, desks, and spare furniture are provided. The floor over the basement is of fireproof construction. A subway from the basement connects the three blocks of buildings and contains all main supplies and junctions to the buildings for heating-pipes, water and gas pipes, thus facilitating inspection and repairs without breaking up the surface of the playgrounds. The infants' school, for 450 infants, consists of a schoolroom, 58 ft. long, 24 ft. wide, and 18 ft. high, three classrooms, each for sixty first, second, and third class infants, and a babies' department of two rooms, for kindergarten instruction to 130 children. The teachers' room and stock room are approached from a gallery over the senior infants' cloakroom and entrance. Two entrance cloakrooms and lavatories are provided, one each for senior and junior infants respectively, and an exit is provided immediately from the schoolroom to the playground. Lavatory accommodation for the teaching staff, and a wash-up sink and store for the caretaker, are provided near one entrance. The babies entrance is placed directly facing the entrance to the girl's school so as to conveniently allow sisters to bring and take home their smaller brothers and sisters. The design of the buildings represents a free treatment of Early English Renaissance. The whole of the floors are of pitch pine wood blocks. All internal walls have brown glazed brick dadoes, the upper part of the walls are faced with gault bricks. The schools throughout are heated by hot water on the low pressure system of pipes and radiators, assisted by open fires when requisite. All school and class-rooms are provided with fresh air inlets, and the top lights of all windows are made to open at the ceiling level, actuated by steel rods and screw-gear. The vitiated air is extracted by means of ventilation flues and ceiling ventilators. The ceiling ventilators take the form of a compass marked with the cardinal points, thus in every room the north point and the aspect of the rooms are readily obtained, and this is an instructive object lesson to the scholars. The desks throughout are dual and executed in oak. In the senior schools the three back rows of desks are raised on stepped floors. In the infants department the desks are on the level floors except that a gallery for fifty babies is arranged in a separate room. The Boards' offices block consists of a board-room, clerk's office and lavatory accommodation, and the caretaker's apartments of parlour, kitchen, larder, three bedrooms, and offices. The external walls throughout are faced with yellow stock bricks with red dressings and purple grey bands. The parapet copings, cills, and other stonework are executed in red Dumfries stone. The roofs of the school buildings are covered with green slates, while the offices and caretaker's block is roofed with red Broseley tiles, which gives a domestic character to the central block and makes a pleasing break in a large mass of roof covering. The playgrounds are tar paved, and are divided and mainly enclosed with brick walls and each provided with a large covered playshed, drinking-fountain, and the usual offices. Great care has been exercised in fitting up the children's out offices to ensure perfect cleanliness and healthy surroundings. The contract price for the whole of the works was 21,457*l.*, and the furniture 921*l.* Messrs. Kingerlee & Sons, of Oxford, were the general contractors, and the whole of the works have been carried out from the designs, and under the personal superintendence of, Mr. William Pywell, architect, of Hanwell. The heating apparatus was supplied and fixed by Messrs. Benham & Sons; the wrought-iron casements and window fittings by Messrs. Hy. Hope & Sons; the wrought-iron gates, railings, and gas fittings by Messrs. Jones & Willis; the locks and door furniture by Messrs. Nettlefold & Sons; the school bells by Messrs. Warner & Sons; the school furniture by Messrs. Fisher, Son, & Weaver; the Board's office furniture by Messrs. Maple & Co.; and the window blinds by Mr. George Ormond. Mr. W. Coppock was foreman of the bricklayers, and Mr. George Prior acted as general foreman on behalf of the contractors.

ROYAL MASONIC INSTITUTION SCHOOLS, BUSHEY.—New schools at Bushey for the Royal Masonic Institution for Boys are nearly completed. The main entrance is distinguished by a central clock tower, and the residential blocks at each corner of the main quadrangle by square towers. The buildings stand on an eminence. They are built of red brick, with stone facings. The designs show a complete arrangement for a school of 500 boys, but dormitory accommodation is built for 400 only at present. The administrative offices and hall are adapted for the greater number, so as to avoid expense in alterations, &c., in the future. The general scheme is quadrangular, the administrative block with its central tower occupying the principal or south-west side and facing the main road and entrance. This block contains the museum and library on the first floor. The educational block, with its separate quadrangle, containing the assembly-hall, the music school, the various arts and physics schools, classrooms, together with the chapel and headmaster's residence adjoining, are placed on the north-west side. The classrooms have one and all a northern light, and the windows are as low as possible. The north-east side is occupied by the dining-hall, the kitchen, and service department, with its separate courtyard; and beyond this the technical schools, swimming bath, gymnasium, and fives courts are placed. The south-east side is left partially open for the present with a view to the erection in the future, if necessary, of an additional residential block. The residential blocks are placed at each corner of the main quadrangle, and arranged to accommodate 100 boys, each block comprising two houses, with day schools, dormitories, and masters' and service rooms, complete. A feature of the design is that all the principal blocks are connected by cloisters, subways being provided for domestic service. Baths on each floor are provided. The assembly-hall is panelled, and has a carved oak roof. The engineering block comprises engine, boiler, dynamo, storage, culinary rooms, and laundry, and the technical school block, carpentry, printing, book-binding, engineering, and shoemaking shops. The dimensions of the dormitories are 66 ft. by 20 ft. by 11 ft., giving 55 superficial and 605 cubic ft. for each boy. It is intended to fill the west-end windows of the assembly-hall with stained glass, as a memorial to the late Mr. Richard Eve, Chairman of the Board of Management, 1891-1900. The chapel is to the south-west of the main block of buildings. It is composed of flint with Ham Hill stone facings and window tracery, and a tiled roof. It was designed by Mr. E. Doran Webb, F.S.A., and consists of a long nave with a low bell turret at the south-west angle, and a vestry and tribune on either side at the east end, and small chancel or sanctuary, which terminates in a semi-octagonal apse. The internal measurements show it to be about 135 ft. in length by 28 ft. 3 in. in breadth. It has three windows in the eastern apse, one to each tribune, three on either side of the nave, and one at the west end, all being of three lights, and with four centred arches. The chapel is entered at the west end by a double doorway, a small antechapel being formed by an oak screen, which supports a gallery for the organ. The floor of the main part of the nave is paved with alternate squares of Hopton and Pennant or Kenton stone, that of the east bay and chancel with white marble. The roof, which is coved and panelled, is of English oak, supported on stone vaulting shafts, attached to the wall at intervals on either side. The seating is arranged on the collegiate plan, and is entirely of English oak, with carved poppyheads. The western screen and gallery, the fronts of the tribunes, and the Communion table, which is raised on two steps, with a stone superaltar behind it, are all of English oak. There is a piscina with stone shelf on the south side of the sanctuary. The three east windows are filled with stained glass, from the design by Mr. P. H. Newman. A scheme of decoration for the walls is also being carried out under the direction of Mr. Newman. The buildings are lighted throughout by electricity generated on the premises. The heating of the buildings is carried out by means of radiators placed in the rooms and passages. The radiators are supplied with steam at atmospheric pressure on the Webster system of atmospheric steam heating. All parts of the buildings are connected together by means of telephones arranged on the exchange system. There are two exchanges, one in the porter's room at the main entrance, and the other in the head-master's house. The new schools have been erected as a memorial of the centenary of the institution, the requirements of which have outgrown the buildings at Wood Green. With the approval of the subscribers, the Board of Management in 1896 purchased the Bushey Grove Park estate of about sixty-seven acres in extent; and subsequently they prepared a scheme, with the assistance of Mr. Roland Plumbe, superintendent of works, and invited six firms of architects to submit designs. Those sent in by Messrs. Gordon, Lowther, & Gunton, of London, were accepted, and the contract for carrying out the work was secured by Mr. Henry Martin, of Northampton.

SANATORIUM, EASTBY, YORKSHIRE.—The foundation-stone has just been laid of a sanatorium for pauper consumptives which is being erected by the Bradford Board of Guardians at Eastby. The plans of the building were prepared by Mr. F. Holland, Engineer and Architect to the Board. The administrative block is a two-story building, and is to be built of stone with grey slated roofs. The building will be so constructed as to enable an enlargement to be effected, if at some future time such a course is found necessary. The kitchen and stores will form part of the administrative block, and all the cooking for patients will be done here. The patients' quarters are two one-story pavilions, elevated from the ground on stone pillars. In the centre is a nurses' room, and each pavilion will contain four single-bed rooms, four two-bed rooms, one four-bed room, one five-bed room, and one dining-room. The verandah is dispensed with in favour of a glass-screened gangway or corridor behind, going the entire length of the building. This corridor is not in any way designed as a promenade or place of recreation for the patients, but is intended chiefly to protect the patients' rooms during the severe weather in the winter months. Each patient's room will have a window in front opening the full width, and a large unglazed window at the back opening into the corridor, and each room will be connected by electric bells with the nurses' room in the pavilion. Bath and lavatory accommodation will be provided behind each pavilion. The pavilions will be built of wood, with red tiled roofs, and the interior walls will be of compo board, painted and varnished. The floors are to be laid with linoleum, and all the angles of the rooms are to be rounded. The whole of the establishment will be illuminated by the electric light. The heating will be by means of hot water on the low-pressure system; the administrative buildings will be fitted up with radiators and open fireplaces; the patients' quarters with either radiators or hot-water pipes, each room throughout the establishment being separately controlled. The ventilation system is that of open windows. The sanitary arrangements include earth-closets for the administrative block and the pavilions, the latter to be connected by an open gangway to the building, and the earth after use will be deposited on the land. The waste water from baths and sinks will be conveyed in open channel by gravitation on to the land. The rain water will be collected in a tank, from which it can be drawn for domestic purposes. The water supply can either be from a well or the Eastby service. The approved plans show accommodation for forty-two patients.

NURSES' HOME, WALSALL HOSPITAL.—The increasing demands upon the resources of the Walsall Hospital have rendered it necessary to provide enlarged accommodation, and a scheme has just been completed for providing new nurses' home and out-patients' department. The building is situated in Wednesbury-road. The front elevation is in the Queen Anne style, and is entirely faced with Leicester bricks. The out-patients' department includes a waiting hall, with accommodation for both sexes. This is approached by a porch, and at the entrance the secretary's office has been provided. To the left of the hall are the house surgeon's room, surgeons' room, operating-room, and dressing-room, with a special entrance for the staff. On the right are the physicians' room and two rooms for patients, whilst at the end of the hall is a room designed and fitted up for the treatment of the eyes. The whole of the upper floors of the building, which is four stories high, is set apart for the nurses. They have a separate entrance from the high ground in the rear. There are twenty-three bedrooms, a general room, a writing room, and various other apartments, and a hall and the corridor are fitted as a lounge. The contract has been carried out by Mr. J. Mallin, builder, of West Bromwich; and Messrs. Bailey & McConnell, of Walsall, were the architects. The structure is lighted throughout by electricity and heated by hot water. The total cost has been between 5,000*l.* and 6,000*l.*

SCOTTISH PROVIDENT INSTITUTION'S PREMISES, BELFAST.—Premises for the Scottish Provident Institution are being erected in Donegall-square West, Belfast. The architects are Messrs. Young & Mackenzie. The large block occupies a frontage in Donegall-square West of 240 ft. It is built of Glasgow stone, in Italian style adapted to modern needs. The central feature of the front of the building is formed by a carved bay. The building rises to a height of 130 ft., a large group representing Britannia protecting her children and a copper panel containing the arms of Scotland being displayed. Each side of the central pediment is flanked by figures of the Sphinx. Effect is added to the whole structure by two flanking towers, crowned by emblematic figures at the height of 140 ft. The arms of England, Ireland, Scotland, and the Australian Commonwealth are placed in part of the centre, and further down a representation of the four leading industries of Belfast—printing, weaving, shipbuilding, and rope-making—finds a place. The main entrance is of large dimensions, formed of white marble. It is intended to let a number of shops which are being constructed on the ground floor. On the first lobby there will be a stained-glass window bearing the arms of Scotland. An electric lift establishes communication between the five floors of offices. Messrs. Musgrave & Co. have installed a system of heating the premises by hot air, and the lighting is arranged by electricity and gas on the most modern American principle. Messrs. W. D. Henderson & Sons supplied and fixed throughout these buildings Messrs. Minton, Hollins, & Co.'s glazed and enamelled tiles for the walls of staircases and corridors. Mr. Robert Corry was the builder. The carving was done by Messrs. Purdy & Millard, Belfast; the stained glass was supplied by Messrs. Ward & Partners; and the marble pavements by Mr. J. F. Ebner.—*Irish News.*

NEW QUARTERS FOR THE 4TH V.B. EAST SURREY REGIMENT, CLAPHAM.—The new quarters of the 4th V.B. East Surrey Regiment, which were opened by Major-General Sir Henry Trotter recently, are situated on St. John's Hill, opposite Clapham Junction Station. The new building is of red brick and Portland cement, with battlements on the top frontage, the architects being Messrs. Wakeford & Son. The building is about 60 ft. in length, with a considerable depth, a large drill ground being in the

rear. In the centre is the main entrance, which will be used by the officers, whilst a pair of gates farther on admit the men to the drill ground or to their new quarters.

SANITARY AND ENGINEERING NEWS.

DOCK IMPROVEMENT PLYMOUTH.—The new entrance gates to the floating basin of Millbay Great Western Railway Docks were opened on the 3rd inst. The work of constructing a new entrance to the westward of the one which has done duty since the construction of the docks was commenced about June, 1898, and the work has cost more than 120,000*l.* Mr. B. A. Anthony is the engineer of the works.

WATERWORKS EXTENSION, RUNCORN.—An addition to the waterworks of Runcorn Urban District Council was completed on the 3rd inst. Weston is situated on a hill, and for some time the inhabitants of this township had complained that the water supply was insufficient and intermittent. To remedy this the Council have caused to be built from the designs of Mr. J. Wilding, the Town Surveyor and Water Engineer, a stone tower, which rises to a height of 250 ft. above ordnance datum. On the summit is an iron tank having a capacity of 20,000 gallons. The water is pumped into this tank by a double ram pump at Runcorn pumping station, and is thence distributed throughout the township. The tower has been built of local stone by Messrs. T. Robinson & Sons, and the tank has been supplied by Messrs. E. Timmins, Limited. The cost of the work is 1,100*l.*

BEDWORTH DRAINAGE AND SEWAGE DISPOSAL SCHEME.—A Local Government Board inquiry was held on the 31st ult. by Colonel W. R. Slack, R.E., into an application by the Foleshill Rural District Council for sanction to borrow 25,000*l.* for a new drainage and sewage disposal scheme for Bedworth. Mr. Oswin, Clerk to the Council, explained that the necessity for a complete scheme had arisen owing to complaints of pollution of the river Anker by the sewage of Bedworth. Dr. Bostock Hill, County Medical Officer, spoke as to the pressure brought to bear by the County Council on the Rural District Council, and he stated that there had been several outbreaks of typhoid in Bedworth, and that until an efficient sewage disposal scheme was carried out it was impossible to minimise many of the evils that existed. Mr. C. Nicholson Lailey, of Westminster, who has been retained by the Council, described the scheme, which includes about ten miles of sewers. Mr. Lailey suggested that as the land at the site of the outfall works is clay, the Local Government Board should be asked not to insist upon the purchase of land on which to irrigate the filtered effluent. The purification scheme adopted embodies the most approved and efficient bacterial oxidation beds, which will be fed by the Candy Whittaker automatic revolving sprinklers. Mr. Lailey, in reply to inquiries, said the scheme he had laid before them was the cheapest, and to his mind the best, that could be carried out. The inspector stated that the Council were acting under expert advice, and that the County Medical Officer, Dr. Bostock Hill, who had great experience in these matters, concurred in the scheme.

FOREIGN.

FRANCE.—The Department of Fine Arts has approved of the scheme drawn up by M. Daumet, the architect, for the continuation of the work of restoration at the château of Saint-Germain. The total cost of the work will be 344,000 francs, half of which is paid by the Department of Travaux Historiques.——The Government has decided on the construction of a bridge over the Rhône between Avignon and Villeneuve-les-Avignon.——The Municipal Council of Bordeaux has under consideration a proposal for two "ponts transbordeurs" (travelling bridges or stages) within the port, to connect the two banks of the Garonne.——M. Redon is continuing the arrangement of the Musée des Arts Decoratifs in the Marsan pavilion at the Louvre, where he has constructed a large central hall and two staircases, in the place of the one grand staircase with which M. Lefuel had proposed to occupy the whole pavilion.—The Government has decided on the creation of a new type of postage-stamp for which M. Mouchon is making the design, and which is to be a reproducion of M. Roty's design on the silver coinage; a figure of a woman in profile, wearing the Phrygian cap, and sowing corn in a field, behind which is a representation of the rising sun.——The Department of Fine Arts has commissioned M. Chartran to paint a large picture, to be placed in the Versailles Museum, representing the ceremonial of the centenary of Victor Hugo at the Panthéon.——M. Darcy, Departmental Architect, and M. Garnier, an architect at Laval, are commissioned to direct the work of restoration at the church of Evron, of which the oldest portion dates from the twelfth century, with a choir of the thirteenth century. M. Clément has been entrusted with the restoration of the church of Carenton, which dates from 1466.——The Chamber of Deputies has passed the Act relating to the restoration to the City of Paris of the area of the Champ de Mars, and has invited the Government to consider, in conjunction with the Paris Municipality, the means of preserving the Galerie des Machines, by rebuilding it near the Porte Maillot, on the site of the fortifications which are to be demolished.——The death, at the age of fifty-seven, of M. Eugène Müntz, has left a great gap in the world of French art-criticism. M. Müntz was a member of the Institut, Vice-President of the Académie des Inscriptions et Belles Lettres, and Librarian of the Ecole des Beaux-Arts. Among his numerous works may be mentioned "Précurseurs de la Renaissance"; l'Histoire de l'Art Pendant la Renaissance"; "Léonard de Vinci—l'Artiste, le Penseur, le Savant"; "Raphael—sa vie, son Œuvre et son Temps"; "Florence et la Toscane"; and lastly, a masterly work on Tapestry, which constitutes the leading and authoritative book on the subject.——We have to record also the death, at the age of seventy-eight, of M. Charles Brun, architect, of Bordeaux; a member of the Société Centrale des Architects, which, in 1898, awarded him their silver medal for domestic architecture. He was architect of the Custom House at Bordeaux and of the Church of St. Louis in the same city, as well as of numerous ecclesiastical edifices in the Department of the Gironde.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Henry Lovegrove, architect, has removed from Herne Hill to 18, Foxgrove-road, Beckenham, Kent.——Messrs. White & Page, architects, of 4 and 5, Warwick-court, Grays Inn, have dissolved partnership. Mr. Edward White and Mr. E. Godfrey Page will continue to practise independently at the same address as before.

BUILDING TRADES EXHIBITION, SOUTH AFRICA.—A Permanent Building Trades Exhibition has been opened at Johannesburg, in a building which is also the headquarters of the Johannesburg Architects' Society and of the Master Builders Association. The exhibition, which is intended as practically a kind of sample room of building materials, is thus convenient for inspection by architects and builders, and is also open to the general public. It is hoped by the managers that English firms would exhibit their materials there. The London agent is Mr. P. Wynter Robinson, of 2, Gresham Buildings, Basinghall-street.

WAR MEMORIAL, LIVERPOOL.—A meeting of the committee in charge of the movement for a memorial to those members of the King's (Liverpool Regiment) who had fallen in the South African war, &c., was held at Liverpool Town Hall on the 4th inst. Mr. W. Goscombe John, A.R.A., who had been invited by the committee to submit models, attended the meeting, and explained the details of two models suitable for the memorial to be placed in St. John's-gardens. It was unanimously resolved to select one of the designs subject to the approval of the joint committee of the Corporation which has in hand the laying-out of St. John's-gardens, and to give the commission to Mr. Goscombe John for the sum of 3,000*l.*

PROPOSED NEW OFFICES AND BRIDGE, NORTH RIDING COUNTY COUNCIL.—The quarterly meeting of the North Riding County Council was held recently at Northallerton, Mr. J. Hutton, M.P., presiding. The Works, Highways, and Bridges Committee reported that they had further considered the question of erecting a new bridge at Whitby to replace the present swing bridge. It is estimated that a bridge on the lines of the present one, with a 22-ft. roadway, on the present piers, would cost 4,500*l.*; and a bridge with a 70-ft. waterway and 24-ft. roadway, it is estimated, would cost 9,000*l.* To these figures must be added 2,500*l.*, the cost of a temporary roadway. The recommendation was adopted.—Amended plans were presented for the County Hall, which it is proposed to erect on a recently-purchased site near the railway station at Northallerton. Alderman Hugh Bell explained the plans in detail. They wanted a building which would contain 663,593 cubic feet, and estimating the cost on a basis of 9d. per cubic foot it gave them an estimated cost of 24,840*l.* He moved that the plans be approved, and that the County Hall Committee be empowered to obtain tenders for the execution of the work. Alderman Lascelles seconded the motion, which was carried.

LONDON CHAPEL EXTENSION FUND.—At the recent annual meeting of the Fund Committee in connexion with the Methodist Free Churches, a Report was presented setting forth that the invested funds amount to nearly 10,000*l.* During the past twelve months new churches were opened at Streatham, Vauxhall, Willesden, Westcliff, Ilford, and East Ham. A new chapel is now being built at Plaistow, a site is given for one at Lewisham, and new churches will shortly be begun at Woodford Green and Seven Kings at a cost of 12,000*l.* and 5,500*l.* respectively.

DARLINGTON BUILDING BY-LAWS.—At the meeting of the Darlington Town Council on the 10th inst., a question was raised as to the building by-laws and their effect upon the erection of back-to-back houses. Alderman Widdowfield, in moving the adoption of the minutes of the Streets Committee, said the past month had been a record one in regard to the number of plans for new buildings passed by the Committee. Alderman Sedgwick stated that at a meeting in the town last week, at which he presided, the Rev. T. C. Gobat stated that houses were being built in the town the plans for which ought never to have been passed. Councillor Leach said at the last meeting of the committee plans were approved which ought not to have been, as they were reverting to a system of back-to-back houses. He was told that under the present by-laws they could not object, though the houses were upon a system long condemned by the Medical Officer of Health. The Town Clerk explained that the plans were in accordance with the by-laws as they stood. Alderman Bartlett said houses with no ventilation through them were being condemned by the magistrates. He was astonished if Darlington began to erect houses of the kind, and they had no law against it. Alderman Wilkes said no back-to-back houses could be built in accordance with the by-laws. In the case they were considering there was 220 ft. of yard space, a 15-ft. back street, and a 40-ft. street in the front. He did not say the houses in question were not objectionable, but they were not back-to-back houses. Councillor Henderson said there was no ventilation, except by a passage, which was made as a way into the back house. Thus a worse class of house would be erected than existed at Leeds or Bradford. If they had the power, they ought to prohibit the erection of such houses. Alderman Barron said the principle upon which such houses were built was most objectionable, and if they could they ought to stop it. He suggested sending the plans referred to back to the Committee. If these sort of houses could be stopped, by all means let it be done; if they could not, the sooner they had the power the better. He moved that the plans relating to the houses in question be referred back to the Committee, and that they be asked not to approve of any of a similar character without reporting direct to the Council as to their powers in the matter. Councillor Henderson seconded the motion. In reply to Councillor Harbottle, Alderman Widdowfield said no similar plans had been passed during the past year. The Streets Committee felt quite as strongly about the question as the other members of the Council, but they were helpless in the matter. The motion to refer the plans back was then agreed to, and the remainder of the Committee's report adopted.

GLASGOW HOUSING SCHEME.—An inquiry was held in Glasgow on the 10th inst., as ordered by the Secretary for Scotland, into the provisional order sought by the Glasgow Corporation to empower them to purchase fifty acres within or without the city boundary with a view to erecting houses for the poorer and labouring classes. The scheme provided for borrowing 750,000*l.* After hearing the evidence, the Commissioners declared the preamble had not been proved, but granted borrowing power up to 150,000*l.* to carry out the present scheme.

LONDON TRAFFIC.—In the House of Commons a few days ago Mr. Bryce had the following question on the paper:—"To ask the First Lord of the Treasury whether, having regard to the increasing congestion of traffic in the streets of London, and to the need for more rapid modes of transit between distant parts, his Majesty's Government will consider the desirability of instituting an inquiry, by Royal Commission or otherwise, into the means of locomotion and transportation in London on and beneath the surface, including the better regulation of vehicular traffic, the possibility of appropriating certain thoroughfares to certain kinds of traffic, the means of facilitating the construction of electric tramways along or immediately beneath the streets, and the steps to be taken for creating a properly-arranged and conveniently inter-connected system of deep-level electric railways." In putting the question, the right hon. gentleman added that it was not intended by the question to suggest that such an inquiry should in any way supersede any ordinary inquiries before committees of the House specially appointed to consider the question of particular Bills. It was meant to lay down the outlines of a scheme, and especially to consider the question of deep-level railways.—Mr. Balfour: I think that the subject to which the right hon. gentleman refers is one of the first importance, not merely for the metropolis, but for the country at large. The only hesitation I have in giving an affirmative reply to the interrogatory on the paper is lest a Royal Commission should have the effect of unduly delaying necessary steps, but I will consider the matter, and I think in all probability a Royal Commission would be the best course.

CAPITAL AND LABOUR.

JOINERS' WAGES ON THE NORTH-EAST COAST.—At Newcastle recently the voting returns from the joiners of the North-East circuit were received. There was a large majority against the employers' proposals. The employers asked the men to resume work immediately at 1s. a week reduction, the other 6d. to be submitted to arbitration. The men had previously offered to accept 6d. a week reduction, which the employers refused to accept. The employers originally asked for a reduction of 1s. 6d weekly.

LEGAL.

EMPLOYERS' LIABILITY ACT:

QUESTION AS TO WORKING NEAR HOISTS.

AT the Marylebone County Court (London), on the 7th inst., before Judge Stonor and a jury, William Waite, a bricklayer, 40, St. Margaret's-road, Kensal Rise, N.W., brought an action, under the Employers' Liability Act, against Messrs. J. E. Johnson & Son, builders and contractors, 90, High Cross-street, Leicester, claiming 200*l.*, in respect of personal injuries, alleged to have been sustained owing to negligence on the part of the defendants or their servants.

Mr. Chester Jones, counsel, appeared on behalf of the plaintiff, and Mr. C. B. Marriott, counsel, for the defendants.

Plaintiff's counsel explained that his client had been employed by the defendants on some buildings in Acton-lane, Willesden, N.W. On April 29 last plaintiff was directed by the foreman of the job to do some bricklaying in a trench, or hole, within some two or three yards of which was a large steam hoist. Although the latter was so near the hole, no protection had been put up, and this, mainly, was the negligence of which they complained. Some iron sash bars for patent glazing were being hoisted, but one of them, it appeared, slipped from the sling, and fell upon the plaintiff's back, causing most serious injuries.

The plaintiff bore out his counsel's opening statement.

Cross-examined: Before starting to work in the hole it struck him that there should be some protection in case anything fell from the lift, but he made no complaint.

Mr. E. Smerthwaite, M.R.C.S., &c., spoke as to the plaintiff's injuries. He thought that possibly the man might be able to work in a year's time, but was doubtful whether he would ever fully recover.

Arthur Ingram, a bricklayer, who also was working in the hole, stated that the iron bars were slung by the rope in such a way that, if they tilted to an angle, they might slip out and fall. The usual way to hoist such iron bars was to interlace them with old sacking or something of the kind, and then bind them with a collar, so that they could not slip out.

John Tucker, also a bricklayer, who was working in the hole, said that he saw the bar of iron in question falling from the lift.

Counsel for the defence submitted that the mere fact of the iron bar falling was not evidence of negligence on the part of the defendants.

His Honour said he thought that there was some evidence of negligence.

Mr. Edward G. Younger, M.D., expressed the opinion that the plaintiff could now do light work, and in about a month's time might be able to resume work involving stooping.

Edwin Ulyett, the defendants' foreman on the job in question, stated that although the hoist belonged to the defendants, and one of their men was working it, Helliwell's Patent Glazing people were having the iron bars drawn up. The hoist was about 18 ft. from the hole, and was intended mainly for bricks and mortar, which could not very well fall so wide as to reach the hole.

In cross-examination, witness said that his people had no control over Helliwell's men, for both firms had contracts running concurrently. He had previously cautioned Helliwell's men not to use the hoist. He was aware that any of the men working on the job would use the hoist if they had the chance when his back was turned.

Peter Rooke, the defendants' general manager, said that he had directed the foreman on the job not to let the men employed by the other firms use the hoist.

In answer to a juryman, witness said that there was no notice put up at the job to the effect that the men of other firms were prohibited from using the hoist.

Charles Dogrell, who was working the hoist, said that Helliwell's men told him it was in the contract that their goods should be raised by the hoist. Witness added that he had been told by the foreman not to hoist goods for any of the other firms.

The questions put by the Judge, and answers given by the jury, were as follows:—Was there any defect in the works of the defendants that caused the accident, or in the mode of carrying on those works?—Yes. Was there any negligence on the part of the special foreman, Ulyett, in sending the men to work down the hole while the hoist was liable to be worked by the man who was in charge of it?—Yes. Was there any negligence on the part of the defendants' general foreman in not taking precautions as to the proper use of the hoist?—Yes. Was the special foreman negligent in not taking such steps on this occasion?—Yes. Did the plaintiff know of the danger of working in the hole, and did he voluntarily and willingly run the risk?—No. This was a verdict in favour of the plaintiff, and the jury assessed the damages at 238*l.*

His Honour gave judgment for this amount, amending the claim accordingly from 200*l.*, and allowed costs.

Counsel for the defence: I am instructed to apply now for a new trial, on the ground, principally, that the damages are excessive. I shall further submit that upon the evidence given by the plaintiff, he accepted the risk.

His Honour: If you are obliged to make that application you must do so in the ordinary way.

GOVERNMENT BUILDING DISPUTE:

IMPORTANT CASE.

THE case of Ben Graham and others (trading as B. Graham & Sons) *v.* the Commissioners of H.M. Works and Public Buildings, came before the Court of Appeal composed of the Master of the Rolls and Lords Justices Romer and Mathew, on the 6th and 7th instants, on the application of the defendants for judgment or new trial on appeal from a judgment of the Lord Chief Justice of England after trial with a special jury at the Leeds Assizes, on August 6, 1901, awarding the plaintiffs an inquiry as to damages.

The Solicitor-General (Sir Edward Carson, K.C., M.P.), Mr. Tindal Atkinson, K.C., and Mr. Askwith, appeared for the appellants; and Mr. Scott-Fox, K.C., and Mr. Waugh, for the respondents.

The Solicitor-General, in opening the case, said that the defendants appealed on the ground of misdirection by the learned Lord Chief Justice. The action was brought by the plaintiffs, a firm of builders at Huddersfield, to recover from the defendants damages upon the grounds that the defendants had wrongfully terminated a certain building contract dated September 11, 1899, and had wrongfully taken possession of certain unfinished work, materials, and plant, the property of the plaintiffs. The contract in question was for the erection of a new head post office at Stalybridge, in Cheshire. The allegation of the defendants was that they had a right under the circumstances which had arisen, and under the conditions of the contract, to serve a notice terminating the contract, and to enter into possession with a view to completion of the building and taking possession of the materials and plant. Stated shortly, the question really came to this, viz., whether the defendants' architect, who had certain powers under the contract, had adjudicated on certain defaults of the builders, which adjudication was a condition precedent to the defendants having power to determine the contract and to enter into possession of the works. The whole judgment of the late Lord Chief Justice turned on that one question. He held there was no evidence of adjudication by the architect at all, and if there was no adjudication the defendants had no right to terminate the contract. His Lordship thought there was no question to be left to the jury. This Court would see that in one aspect of the case there might be one question which ought to be left to the jury. At an early stage in the case the Lord Chief Justice said he would not allow evidence on the question as to whether there was in fact default by the builders to be left at all to the jury. The learned counsel then referred to the contract which had been entered into between the parties. Clause 3 provided that the work was to be commenced immediately on possession of the site being given over to the builders, and was to be carried on and completed to the satisfaction of the architect by a certain date. Clause 5 provided that every part of the work was to be executed as directed by the specification, and in a sound, workmanlike, and substantial manner, and all the materials used in the construction of the building were to be new and of the best of their respective kinds, except as otherwise provided in the specification. No. 10 was an important clause. By that clause the architect had power to direct the builders to execute any part or parts of the work before any other part or parts, and he had authority to judge of the manner of execution of any part of the work and the quality of any materials used or intended to be used therein. The architect also had power to order the removal of any part or parts of the work which should appear to him to be of an improper description, and any materials which he should consider to be of an improper size or description, and the builders had to remove all such materials from the site. The learned counsel submitted that in both those matters the architect was made by the parties the sole judge. Clause 24 provided that, if the builders should make default in the due performance of these conditions or delay proceeding with the work, the architect should give notice of such default to the builders and specify the same, and on the builders continuing in default for a period of seven days after such notice, then the Commissioners had power on the written certificate of the architect of the fact of the builders' failure or default to comply with such notice to determine the contract, and all sums of money due to the builders and all the builders' goods and chattels on the works should be forfeited to the Commissioners. It was also provided that the Commissioners had in such case the power to employ other persons to complete the work, and that without prejudice to any claim they might have against the builders for breach of contract. It was under that clause that the Commissioners purported to take possession of the site. What happened was this. On November 7, 1900, the defendant's architect, Mr. W. T. Oldrieve, went in the ordinary course of business to inspect the work as it was going on, at the time the builders were putting in the wood-work of the roof of the sorting-office. Mr. Beaumont, the clerk of the works, pointed out to the architect certain timber which was lying on the ground, of which certain joists which had been actually put in the roof formed part. Mr. Beaumont pointed out that the timber was inferior to that specified for. The architect did not go on to the roof to inspect the joists himself, but being satisfied from what he saw of the timber on the ground, and of what Mr. Beaumont said about it, he instructed this gentleman not to allow the timber to be used. On November 14 he received a report from Mr. Beaumont that, notwithstanding his protest, the builders were still using the timber in the roof. On November 15 the architect wrote to the builders that he was compelled to insist upon their removing from the roof all such timber as was objected to, and that such parts would be pointed out to them by the clerk of the works. He told the builders also that unless this was done within a week the work under the contract would be stopped. On November 16 Mr. Beaumont wrote to the builders and specified the pieces of timber objected to. He had gone on to the roof and marked with a blue pencil the pieces of timber objected to. One of the plaintiffs' firm then seemed to have come down and seen Mr. Beaumont, and said he would remove the timber in question if that would put an end to the whole of the grievances and complaints. Mr. Beaumont said he had no power to say any such thing, and then the builder said he would do nothing. On November 24 a gentleman acting for Mr. Oldrieve, who was ill, gave the builders notice that they had made default in removing the defective timber from the roof, and requiring them to remove same, and replace with sound timber, failing which the Commissioners would proceed as they might be advised. No notice was taken of that, and eventually the defendants terminated the contract, and took possession of the works. The learned counsel said that the Lord Chief Justice, while agreeing that there had been sufficient notice to the plaintiffs, thought the defendants had not brought themselves within clause 24, because the defendants allowed Mr. Beaumont to mark the individual pieces of timber objected to, and that their architect did not do so. He held there had been no adjudication by the architect at all. The whole question was whether the architect had sufficiently indicated to the builders what was complained of.

Lord Justice Romer: What I suppose the other side will say is that this was not notice by the architect of defects which he had satisfied himself were defects; but notice of defects which his subordinate had decided were defects?

The Solicitor-General said that the contention from the other side seemed to be that in every such case the architect must himself get a ladder and go up on to the roof, or down a manhole into a drain, and specify every particular piece of timber, brick, or pipe he objected to as being defective. His (counsel's) contention was that the architect had the right to say to a competent man, and whom he knew to be competent, "You pick out the pieces of timber, bricks, or pipes you say are defective."

The Master of the Rolls: This matter has often been discussed; I mean the limits of the architect's rights where he is himself *delegatus*, and how far he can delegate to anybody else.

The Solicitor-General: Yes; there are some authorities. I think what they come to is this:—If the architect says "I am not going there at all; I am not going to look at the timber, and I appoint another man to do that because I am too busy," that would not be enough. But if he is in daily, or the customary, contact with the work, and exercising proper supervision over the work, and leaves the carrying out of certain details to another, he is not delegating his position at all. He is merely having the assistance of persons he is entitled to have.

The learned counsel, in conclusion, submitted that the learned Lord Chief Justice had misdirected himself on the matter, and that the defendants, in all the circumstances, were within their rights in terminating the contract.

Mr. Tindal Atkinson followed on the same side.

Mr. Scott Fox, on behalf of the defendants in support of the judgment in the Court below, contended that inasmuch as the defendants' architect had not himself personally inspected the timber used in the roof which was objected to by the clerk of the works, the defendants had no power to terminate the contract. The contract provided that the architect was to be the judge in such matters, and he could not delegate such duty to the clerk of the works. The plaintiffs contracted to rely on the discretion and judgment of the architect, and not on the discretion and judgment of anybody else. In the present case the architect relied and acted on the discretion and judgment of the clerk of the works, but that was not sufficient to enable the defendants to give notice determining the contract. The learned counsel next dealt with a cross-appeal by the plaintiffs, which was that if the Court should be of opinion that the defendants had the right to act on the architect's certificate, the defendants had waived their right to terminate the contract by ordering extras after the time they gave plaintiffs notice determining the contract, and had ordered goods to be sent on the

site from sub-contractors, for which the plaintiffs were liable to pay. He submitted that a question ought to have been left to the jury whether, even supposing the defendants had the right to give the notice determining the contract, defendants had not waived their right to do so.

The Solicitor-General having replied on the whole case, and Mr. Waugh having replied on the plaintiffs' cross appeal,

The Master of the Rolls, in giving judgment, said this was a case of some difficulty. The first question to be decided was whether the architect had acted in accordance with the terms of the contract so as to justify the defendants determining the contract. If the court was of opinion that there was a consummated forfeiture, then there arose a second question of whether the defendants had waived their right to exercise that forfeiture. As to the first point, the Lord Chief Justice had held that the architect had not adjudicated on the matter, in that he delegated the duty of the inspection of the timber to the clerk of the works. By the terms of the contract the architect could order the removal of any materials used in the building that appeared to him not up to the specified quality. The plaintiffs' contention was that that being so, he must himself determine and decide upon what particular timbers were not up to quality. What the architect actually did was to examine the wood on the ground, and finding that it was not of the required quality, he directed the clerk of the works to mark the timbers already put in the roof of the sorting-house to which he objected. Upon that gentleman's report the architect framed his certificate, and the question was whether in these circumstances the architect could be said to have adjudicated on the matter. It was perfectly obvious as a matter of business that one could not expect an architect to go into every detail himself, and his lordship had no hesitation in holding on the authorities that the architect having himself first ascertained that the timber being used was not of the stipulated quality, was perfectly entitled to delegate the duty of particularising which of the timbers had to be removed. That being so the defendants had the right to terminate the contract had they not waived their right of doing so. In his lordship's opinion, having regard to the time that was allowed to elapse between the committal of the default and the termination of the contract, and to the fact that the architect ordered the plaintiffs to execute certain extras after default, there was a question of waiver on the part of the defendants which ought to have been left to the jury. That being so, unless the parties could come to some agreement, there must be a new trial.

The Lords Justices concurred.

IMPORTANT CASE IN THE CHANCERY DIVISION.

MR. JUSTICE BUCKLEY, on the 8th inst., in the Chancery Division, delivered a considered judgment in the case of Boyce *v.* the Paddington Borough Council. The question to be decided was whether the owners of land circumjacent to and abutting upon other land which had become an open space within the Metropolitan Open Spaces Acts, 1877, 1881, and 1887, and the Disused Burial Grounds Act, 1884, became at once, by virtue of those Acts, or must be allowed to become, after the period of the Prescription Act by virtue of an enjoyment which could not be excluded by the erection of hoarding, entitled as of right to the access of light to the windows of any buildings which they might erect contiguous to the open space.

The short facts are as follows:—The open space in question is the disused burial ground of St. Mary's, Paddington. The plaintiff recently erected a large block of flats immediately abutting upon that open space with several windows overlooking it. The defendants asserted that they were entitled to erect a hoarding in front of those windows so as to preclude the plaintiff from prescribing for rights of light. The plaintiff said they were not so entitled, and asserted his case on two grounds. He said, first, that he, as a member of the public, was entitled to insist that the space should be an open space, from which it would result that there would be free access of light to his windows; and, secondly, that whether this was so or not, the defendants could not erect a hoarding so as to prevent his becoming entitled by prescription because they were by the relevant Acts of Parliament forbidden to erect any building, temporary or movable, except for the purpose of enlarging the church. His contention was that a hoarding erected for the purpose of preventing the acquisition of a prescriptive right to light was a building. The defendants contended, first, that the plaintiff could not maintain the action without the concurrence of the Attorney-General; and secondly, that they were not precluded by the Acts in erecting such a hoarding as was necessary so as to prevent the plaintiff from obtaining the benefit of the Prescription Act.

Mr. Justice Buckley, in giving judgment, held that the plaintiff's action was well constituted, and that he could maintain the action without the concurrence of the Attorney-General. The plaintiff was suing either in respect of an alleged right to the free access of light to his windows over the open space, or in respect of a public right to have the space maintained as open and without the erection of a hoarding, which he (plaintiff) called a building. In the former case he was suing upon an alleged private right; there was no public right of access of light to private property. In the latter he was suing in respect of an interference with a public right from which he personally sustained special damage. In either case he could sue without joining the Attorney-General. Passing on to deal with the point as to the right which the plaintiff claimed, his lordship said it seemed to him to be an extraordinary proposition that because an open space was devoted to the public for enjoyment in an open condition free from buildings for exercise and recreation, the result should be to give, immediately, or by the unavoidable operation of the Prescription Act, to the circumjacent owners as a matter of right an easement of light which theretofore they had not enjoyed. There was no public right to have free access of light to windows on the land surrounding the open space or any part of it. What he had to consider was whether such a hoarding as the defendants would put up to prevent the plaintiff from acquiring prescriptive rights would be a "building" within the Acts with which he had to deal. In his opinion it would not. It would be an erection, not put up for any purpose of building, but as a necessary act to prevent the acquisition of a prescriptive right. The word in Section 5 of the Act of 1881 occurred in he connexion that the land was to be enjoyed "in an open condition free from buildings." He thought that this meant such buildings as would preclude or diminish its enjoyment in an open condition from exercise and recreation. (Act of 1877, Section 1). In Section 3 of the Act of 1884 the erection of any buildings upon a disused burial ground was forbidden, except for the purpose of enlarging a church. He thought that the word "buildings" there meant erections which would cover some part of the ground, as the enlargement of a church would do. It did not refer to something in the nature of a fence or barrier to prevent the acquisition of prescriptive rights to light. Upon these grounds therefore he held that the plaintiff had not by virtue of the Acts acquired such an easement as he sought to enjoy, and that the defendants were not by the Acts precluded from erecting such a hoarding as was necessary to prevent him from obtaining the benefit of the prescription Act. His lordship accordingly dismissed the action with costs.

CARDIFF LIGHT DISPUTE.

LORDS JUSTICES Vaughan-Williams, Stirling, and Cozens-Hardy in the Court of Appeal on the 10th inst. heard an appeal by the defendant in the case of Lewis *v.* Bafico from a judgment of Mr. Justice Kekewich, in the Chancery Division, by which he granted an injunction restraining the defendant from erecting in or upon the area at the rear of Custom House-street, Cardiff, any building so as to obstruct the access of light to the plaintiff's premises.

Mr. Renshaw, K.C., and Mr. Boxall, K.C., appeared for the appellant; and Mr. Warrington, K.C., and Mr. Cohen for the defendant.

Mr. Renshaw said this was not a case of ancient lights, or lights by prescription, but a question depending upon circumstances that existed at the time certain leases were granted by the Corporation of Cardiff to the predecessors in the title of the plaintiff and the defendant. The plaintiff's premises, No. 13, Custom House-street, ran through to the defendant's premises, No. 6, New-street, and the two windows as to which the injunction was granted were: one in the basement, and the other in the ground-floor, both looking into the area dividing the two properties. In 1875 an Act called the Cardiff Improvement Act was passed which enabled the Corporation to clear away a certain insanitary area, and required them to let on building leases the land so acquired. On July 30, 1884, the Corporation demised to Augustus Lewis, a builder and the brother of the plaintiff, a piece of parcel of land having a frontage of 21 ft. to Custom House-street for a term of seventy-five years, and the lease contained a covenant that the lessee would erect upon the land a substantial shop, warehouse, or other building to the satisfaction of the Borough Engineer. A building was erected which was No. 13, Custom House-street, and the lease was assigned to the plaintiff on July 24, 1894. On the same date that the lease was granted a lease in similar terms was granted to the same lessee of a piece of land on which No. 11, Custom House-street now stood, and that was assigned in April, 1888, to the defendant. A third lease, also to Augustus Lewis, was that of No. 6, New-street, which was assigned to the defendant in June, 1896, and the question was whether, although at the dates of the leases the property was treated as land, there was anything in the leases to make them tantamount to a demise of a house, so as to imply a grant of a right to light as it existed when the old houses stood on the site. In 1896, just after the defendant acquired the lease of No. 6, New-street, he put a sort of platform over the area at the rear, and in January, 1900, he erected a wood and glass structure upon the platform. That was not objected to; but in March, 1901, he put up the building of which the plaintiff comp'ained.

Mr. Warrington having supported the judgment in the court below,

Lord Justice Vaughan-Williams, in giving judgment, said that in respect of No. 11, Custom House-street, and so much of the area as being part of the property, the defendant had a right to exercise all the rights of an owner, and so much of the injunction as went to restrain him from erecting such walls as he liked upon that property as proposed by the lease was therefore wrong. But so far as related to the property No. 6, New-street, the injunction was right, because the defendant had not got the assignment of No. 6 till the plaintiff had got the assignment of No. 13. There would be no costs of the action, but the defendant was entitled to the costs of the appeal.

The other Lords Justices concurred.

IMPORTANT QUESTION ON A CONTRACT.

IN the Court of Appeal on the 12th inst., the Master of the Rolls and Lord Justices Romer and Mathew gave judgment in the case of Bow, McLachlan, & Co. *v.* Dutilth, Smith, McMillan & Co. The appeal was by plaintiffs from a decision of Mr. Justice Jelf in Chambers, staying the action and allowing the case to go to arbitration. The short facts were these: The plaintiffs' are electrical engineers, carrying on business in Glasgow, and the defendants are a firm of electrical engineers who had a contract with the Southend Corporation for the installation of the electrical tramway system in the town. They sublet the engineering part of the contract to the plaintiffs, the total amount of which sub-contract was about 8,000*l.* The claim in the action was for about 3,000*l.*, the balance alleged to be due under the sub-contract from the defendants, and 900*l.* for extras. The defendants, by a counter claim, sought from the plaintiffs 3,500*l.* It appeared that under the contract between the defendants and the Southend Corporation, that any dispute arising between the parties was to be referred to the arbitration of the Southend Corporation Borough Engineer, Mr. Fidler, and the sub-contract between the parties contained an exactly similar clause. Mr. Justice Jelf, in view of this, on the application of the defendants, stayed the action started by the plaintiffs, and referred the matter to the arbitration of Mr. Fidler. The plaintiffs appealed from this decision on the ground that Mr. Fidler's interests were so fully mixed up in the dispute that he could not approach the matter with a sufficiently open mind to give an unbiassed decision upon it. The dispute had reference to the supply by the plaintiffs of two engines, each capable of producing 200 kilowatts of electricity, and a third engine of 125 kilowatts. These engines did not pass the tests of Mr. Fidler, and he made the defendants substitute a new engine for one of the engines supplied by plaintiffs and made them repair two of the other engines, the amount of this contract being the amount of the counterclaim for 3,500*l.* Plaintiffs alleged that if anything was wrong with the machinery, it was the boilers, which the Borough Engineer himself supplied, and that, in the circumstances, he was not the proper person to arbitrate on the matter.

The Master of the Rolls, in giving judgment, said that it seemed to him that there was no reason to anticipate that Mr. Fidler would not honestly act between the parties in his position as arbitrator. The appeal would be dismissed with costs.

Lord Justices Romer and Mathew concurred.

On the application of Mr. Hamilton, K.C., who appeared for the plaintiffs, their lordships stayed the proceedings under the arbitration for a week to enable the plaintiffs to consider whether they would appeal to the House of Lords.

DISTRICT SURVEYOR OF BLOOMSBURY *v.* POLDEN.

AT Bow-street Police-court, on the 6th inst., before Mr. Fenwick, judgment was given in the case (heard on October 16) of a building, No. 116, High Holborn, being over ten squares in area and not properly separated as required by Section 74, Sub-section 2, of the Building Act.

The magistrate remarked that a portion of the vaults shown on plan had been bricked up and abandoned, and therefore was not now calculated in the area of the building.

An order was made to comply with the requisition of the District Surveyor within fourteen days and to pay three guineas costs.

DISTRICT SURVEYOR OF BLOOMSBURY *v.* DANIEL.

AT Bow-street Police-court, before Mr. Fenwick, magistrate, on the 16th ult., a summons was heard for neglect to comply with a notice of irregularity, under the London Building Act, 1894.

The defendant had erected an enamelled iron advertising sign over and covering the first-floor window, obstructing all light and ventilation to a habitable room at No. 190, Shaftesbury-avenue, contrary to Section 70.

The District Surveyor stated that the structure had been removed, and the summons was withdrawn upon payment of 13*s.* costs.

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

14,006.—APPARATUS FOR SHUTTING DOORS: *D. Schanzer.*—As the door is being closed by a lever, which is turned with a spiral spring, a stud mounted upon an axis which works a cam having a V-shaped profile presses up a piston, joined by a tube to the cam, and compresses a spring set around the tube, and as the piston compresses air in a cylinder above it it serves, together with the latter spring, to check the action of the door; but as soon as a pin has passed over the lowest point of the cam the two springs and the compressed air above the piston combine to close the door just before it becomes shut.

14,018.—PROCESS OF MOULDING BRICKS: *J. Laurenties.*—Bricks and similar goods having frogs or recesses in their bearing surfaces are made with certain moulds and plungers, or dies, by various methods. In one adaptation, when the brick is ejected from the mould, air is admitted into the recess by means of recesses made in the frame and die. In another form, the upper die is bolted on to the plunger, or cross-head, the lower middle part of the die being enveloped in a loose frame, and having a middle and pivoted lift valve for the admission of air into the recess after the frame has been lifted; the movement of the middle die is stopped, and the frame, with the brick, is lifted as high as the top of the mould, as soon as a washer of a rod that is screwed into a cross-bar of the die touches the table; otherwise, one ejecting-rod is screwed into a cross-bar of the die-frame, and there are slots that take sliding end-projections from the middle portion of the die.

14,031.—MANUFACTURE OF EARTHENWARE PIPES.—*C. E. Robinson and J. Staley.*—For finishing the surface of the goods before they are burned and removing blisters and similar blemishes, the inventors join prickers or needles to the sections of a ring that is controlled with a spring, and to the expanding and smoothing parts of the machine; the wedge-shaped expanding contrivance is joined to a rod or rods, inserted through a handle, and having stops to restrict the projection of the needles.

14,061.—AN APPLIANCE FOR WINDOW-SASHES: *W. Dearen.*—A dove-tail shaped block is inserted into a recess in the sash-stile, the sash-cord is nailed to the block, and to enable one to take the sashes out of the frame the beads at the right-hand side of the frame are made detachable, being held in position with dowel pins.

14,152.—MEANS OF FASTENING WINDOW-SASHES: *J. Pollock.*—In a standard affixed to one sash is centrically pivoted a weight which may be plugged with lead, and to which is secured a screwed arm carrying a button or nut and set to engage with a crutch upon a stem fastened to the other sash. The screwed arm when unfastened will be held vertically and disengaged from the crutch by the weight. The motion of the arm is regulated with pins upon the weight. For fastening the sashes the crutch and the arm are to be engaged, and the nut is then turned until the engagement of its neck with the crutch pulls the meeting-rails to one another.

14,211.—AN INSTRUMENT FOR SURVEYORS' USE: *J. Smith.*—The inventor causes a telescope or sighting-tube to be carried at 45 deg. with the level. For measuring the height of an object the observer, having sighted its top, measures the distance to the base of the object and so obtains its height; for measuring the width of an object with a pointer that traverses a scale the telescope is mounted adjustably about a pivot at its lower end with a screw.

14,290.—IMPROVEMENTS IN MANHOLE COVERS: *G. W. Kirk.*—An annular ledge is fashioned about the inside of the frame in order that it may take the rim of the cover, whereby the manhole will be rendered air-tight.

14,308.—A CRAMP AND MITRE BLOCK COMBINED: *C. Matthews and J. H. Payne.*—In this contrivance, which constitutes an improvement of that specified under No. 28,191 of 1897, there are screws that secure the guiding-plates for the jaw to the top of uprights; a slot in one of the plates provides for its due adjustment.

14,309.—A FASTENING FOR DOORS WHEN CLOSED: *G. W. Mallory.*—The anti-friction roller of a curved arm is forced against the door with a spring. The spring is joined to a bracket as well as to an arm formed in one piece with the curved arm and spindles in bearings at the ends of arms upon the bracket. As the door is opened the curved arm will be forced outwards, to be so held by the spring until the door is closed; thereupon the roller is returned into its position for action by means of the curved flanges or lips of a metallic plate.

14,310.—AN APPLIANCE FOR INCANDESCENT BRACKET BURNERS: *E. J. Shaw.*—The inventor seeks to obviate the heating of the gas supply on its way to the burner, and the tarnishing by heat of the lacquered or brass supply pipe. He joins to the wall plate, or to an arm thereof, a U-shaped gas supply-pipe or bracket, and causes it to be passed downwards outside the chimney and the globe to the burner connexion. Insulated rings upon the bracket keep the globe steady, and an extension piece of the bracket below the connexion furnishes a plugged trap for drawing off moisture.

14,333.—SOLDERING-IRONS USED WITH GAS: *C. Karfunkelstein.*—A tube in the handle conveys the gas supply, which is regulated with a screw, and as it flows out through the nozzle and a barrel, draws in air at two apertures; with its escape in flame from the upper end of the tube, it draws in air through other openings; but a cap, having open ends, mounted upon the tube, prevents the flame from passing through the latter openings.

14,394.—CONSTRUCTION OF KILNS: *J. Prince.*—A middle main flue is built lengthwise beneath the floor of a long-arched kiln, and pairs of fire-grates divide it into a range of chambers. Branch-flues that open into the floor near the side walls are set in front of each pair of grates. After the chambers have been charged through their openings they are bricked up; the grates are then fed through doors, and, it may be, through openings in the roof. The charging and the fire-lighting are performed progressively from the end that is most remote from the chimney, and the disposition of the dampers enables the gases to flow through a prearranged number of chambers on their way to the flue. The kiln is stated to be available for the burning of bricks, tiles, pipes, lime, &c.

14,408.—LAVATORY BASINS AND THEIR FITTINGS: *A. N. Chamberlain and W. L. B. Hall.*—The rear ends of a horse-shoe carrier in which the basin is pivoted are pivoted in vertical slots, and when the carrier is horizontal the rear-ends press against a cross angle-bar. The frame is folded up by turning the carrier into a vertical position, raising it clear of the bar, and then lowering it out of the way, a pivoted carrier holds up the receiver, which can also be folded up vertically.

14,423.—DISTRIBUTION OF ELECTRICITY: *A. M. Stark.*—For a system of three-wire distribution, having its main leads and common return bridged with secondary batteries, the leads at the subscribers' stations are branched to supply lamps or motors, the main leads and returns being tapped so as to constitute, with secondary conductors, circuits for telephone and telegraph systems. At each station a call will be set in circuit with the secondary wire whenever the telephone is hooked up, but when the telephone is not on the hook the return and secondary conductor afford communication. The calling is kept in circuit at the exchange with a plug when socketed, a battery supplies current, and relays put the clearing-out or "busy" test lamp into or out of circuit with that battery. "Busy" rings connected in parallel to the spring-plug socket are provided for the jacks.

14,427.—SLEEVE-JOINTS FOR COUPLING PIPES: *J. Stewart.*—Some pliable thin metal, such as alloy or lead, which may be manipulated by the workman, is used instead of rubber or canvas for the outer envelopes or sleeves in making a joint with a plaster material between a water or other pipe and the inlet or outlet of a sanitary appliance. A jointless and shapened sleeve may be adopted, or it may be fashioned of sheet metal lapped and creased to make the joint.

14,433.—SOCKETS FOR THE HANDLES OF PICKS: *F. Nelson.*—Instead of the customary socket, inside of which the handle is fitted and upon which one drives the pick-eye, the inventor devises a socket in two portions which spikes, that enter into the handle, maintain in their proper positions.

14,456.—A VARNISH: *W. L. Shooter.*—Solvents, such as spirits or naphtha, are dispensed with by this process for dissolving shellac. Borax or boracic acid is added to a boiling solution of shellac in water, and then liquid ammonia is added to complete the solution. In another method, for a varnish that must be used when it is hot, soda or an admixture of borax and soda is substituted for the boracic acid or borax.

14,463.—THE BUILDING OF WATER-RESISTING WALLS FOR SUBTERRANEAN OR SUBAQUEOUS FOUNDATIONS: *J. F. O'Rourke.*—The invention chiefly concerns the arrangement of the caissons, each of which is built up with vertical timbers held and bound together with horizontal angle-irons, and has a roof; an opening in the roof communicates with the air-shaft, and a cover normally shuts another hole near one end of the caisson. When one caisson has been sunk and some of the wall has been built up within it—a semi-cylindrical part at the end beneath the latter hole excepted—the second caisson is sunk into line, and a water-tight joint about the middle timbers is effected by securing the abutting ends together; then, after removal of the lower angle-irons and the middle timbers of the abutting ends, the building of the wall is resumed through the opening into the second caisson as sunk, and the next length of the wall is built. The covers are taken off the holes at the ends of the caissons for removal of the upper angle-irons and the middle timbers, and so the work proceeds. In order that the completed wall shall enclose a circular or polygonal space (to be filled with concrete or to form the foundation of a pier or other structure) the two vertical ends of each caisson are turned slightly towards one another. In another method the inventor discards the roof of the caisson and affixes the topmost angle-iron below the upper ends of the vertical timbers, that will engage with the lowest projecting angle-iron of a coffer-dam extension.

14,490.—SUPPORTS FOR LAMPS: *H. J. Harrison.*—A support for incandescent and other lamps consists of flexible conductors that are wound upon a drum that will turn about a rod affixed in a carrying frame; a pinion gears the rod to a wheel upon a shaft joined to the inner end of a spring-coil which balances the weight of the lamp. The lamp is sustained at any height by means of the engagement of two pivoted catches upon the drum with notches cut in the rod. Concentrical rings on the other end of the drum join the flexible conductors to two contact-springs that are connected to the supply-wires, and are carried by an insulator upon the frame.

14,498.—CONSTRUCTION OF FIREPROOF FLOORS, CEILINGS, &C.: *New Jersey Wire Cloth Co.*—Hooked hangers or wire loops fasten the centering supports of floors, arches, and so on. The loops and hangers are cut level with the lower flanges of the beams after the concrete has become set, or their ends will serve to hold up the wire netting and ceiling bars. The hanger can be looped around the beam and a centering support, or its crossed sides may be tightened by pressing the upper ends asunder. The centering supports carry the centering boards whereon the bricks, tiles, blocks, or concrete are laid, and they are to be fastened to one another with nails driven through cleats.

14,502.—AN IMPROVED PLIER OR NIPPER: *W. A. Bernard.*—The handle and jaw are fashioned in one piece, and that limb is recessed into the other limb, to which it is joined with a projection that fits into a recess and also with screws or rivets affixed to plates and inserted through holes. The tool is provided with cutters and nipping jaws.

MEETINGS.

FRIDAY, NOVEMBER 14.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. J. E. Worth on "Water Supply, Sources of Supply, and Distribution." 7 p.m.

SATURDAY, NOVEMBER 15.

Institution of Junior Engineers.—Visit to Messrs. Yarrow & Co.'s Shipbuilding and Marine Engineering Works, Poplar. Train leaves Fenchurch-street at 9.13 a.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Sewage and Destructor Works, Ealing. 2.15 p.m.

British Institute of Certified Carpenters.—Visit to the University Hospital, in course of erection in Gower-street, W. 3 p.m.

MONDAY, NOVEMBER 17.

Royal Institute of British Architects.—(1) Mr. F. C. Penrose, F.R.S., on "The Drawing and Construction of the Ionic Volute"; (2) Dr. A. S. Murray on "A Fragment of the Parthenon Frieze," with lantern illustrations. 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. J. E. Worth on "Sewerage." 7 p.m.

Liverpool Architectural Society (Incorporated).—Mr. Otis D. Black on "A Holiday in Normandy." Illustrated by lantern slides. 6 p.m.

Royal Philosophical Society of Glasgow (Architectural Section).—Mr. Jas. Chalmers, I. A., President of the Section, will deliver the Presidential Address, entitled, "The Romance of Two Abbeys; Holyrood and Aberbrothock." Illustrated by drawings and limelight views. 8 p.m.

TUESDAY, NOVEMBER 18.

Institution of Civil Engineers.—Paper to be further discussed, "Electric Tramways," by Messrs. Charles Hopkinson, B.Sc., Bertram Hopkinson, B.Sc., and Ernest Talbot. 8 p.m.

Glasgow Architectural Association.—Mr. W. U. Muir on "The Duties of a Clerk of Works." 8 p.m.

WEDNESDAY, NOVEMBER 19.

Society of Arts.—Inaugural address by Sir W. H. Preece, Chairman of the Council. 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. J. E. Worth on "Sewage Disposal." 7 p.m.

British Archæological Association.—The Rev. W. S. Lach-Szyrma, M.A., on "Ancient History of Hainault Forest before the Roman Conquest." 8 p.m.

THURSDAY, NOVEMBER 20.

Leeds and Yorkshire Architectural Society.—(Craft Evening.)—Mr. J. Wright on "Evolution of an Etching, by practical illustration." 6.30 p.m.

FRIDAY, NOVEMBER 21

Architectural Association.—Papers by Mr. Cecil C Brewer and Miss Jane Walker, M.D., entitled "Some Notes on Sanatoria for Consumptives." Illustrated by lantern views. 7.30 p.m.

Institution of Junior Engineers (Westminster Palace Hotel).—Inaugural Meeting of twenty-second Session. Col. Edward Raban, C.B., R.E., will deliver his Presidential Address on "The Preparation of Engineering Projects." 8 p.m.

Birmingham Architectural Association.—Mr. W. Henman on "The Development of Hospital Design, Illustrated by the Royal Victoria Hospital, Belfast."

Sanitary Institute (Lectures for Sanitary Officers).—Mr. J. E. Worth on "Scavenging, Disposal of House Refuse." 7 p.m.

Institution of Mechanical Engineers.—(1) The adjourned Discussion will be resumed and concluded upon Captain C. C. Longridge's paper on "Oil Motor-cars of 1902." (2) If time permits, the following paper will be read and discussed:—"Recent Practice in the Design, Construction, and Operation of Raw Cane Sugar Factories in the Hawaiian Islands," by Mr. J. N. S. Williams. 8 p.m.

SATURDAY, NOVEMBER 22.

The Craft School (Globe-road, Bethnal Green, E).—Mr. H. Llewellyn Smith on "Stage Scenery as an Art," with Illustrations. 8.30 p.m.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

October 22.—By E. G. Hothersall (at Preston).

Barton., &c., Lancs.—The Newsham Hall Estate, 126 a. 2 r. 18 p., f. £9,000

October 30.—By Philip Davies (at Knighton).

Pilleth, Radnor.—The Barns Farm, 193 a. 1 r. 31 p., f. 3,000

October 31.—By Messrs. Spelman (at Norwich).

Norwich.—84, Prince of Wales-rd., f., y.r. 40*l.* ... 1,050
70 and 72, Rose-lane, f., e.r. 36*l.* 720

November 3.—By Baxter, Payne, & Lepper.

Bromley, Kent.—The Corner, f.g.r. 215*l.*, reversion in 60 yrs. 6,200
Sydenham.—138, Sydenham-rd., f., y.r. 42*l.* 1,380

By William Houghton.

Clapton.—44, Kenninghall-rd., f., y.r. 55*l.* 770
Walthamstow.—11, East-av., f., q.r. 32*l.* 580
Markhouse-rd., freehold building site. 335
Forest Gate.—Woodford-ter., &c., f.g.r. 10*l.*, reversion in 74 yrs. 265
Bignold-rd., f.g.r. 11*l.*, reversion in 76 yrs. ... 285
Norwood.—45 and 47, Portland-rd. (The Victoria Stores with off-license), f., y.r. 48*l.* 1,250
35, 37, and 39, Portland-rd., f., w.r. 62*l.* 8s. 905
1 and 3, Victoria-rd., f., w.r. 45*l.* 10s. 555

By Muskett & Sons.

Tottenham.—69, 71, 79, 81, 85, and 87, Beaconsfield-rd., u.t. 74 yrs., g.r. 36*l.* w.r. 201*l.* 10s. (in lots) 1,260

By Weatherall & Green.

St. John's Wood.—24, Boundary-rd. (S), u.t. 35 yrs., g.r. 10*l.* 18s. 9d., y.r. 55*l.* 550
122 and 126, Boundary-rd. (S), u.t. 48 yrs., g.r. 22*l.*, y.r. 110*l.* 960
28, Circus-rd., u.t. 17 yrs., g.r. 10*l.*, y.r. 80*l.* .. 625
2, The Villas, u.t. 17 yrs., g.r. nil, e.r. 65*l.* 345
Chislehurst, Kent.—61, 63, and 65, Chislehurst-rd. (S), u.t. 57 yrs., g.r. 21*l.*, y.r. 120*l.* 1,395

By Rendell & Symons (at Newton Abbot).

Ipplepen, Devon.—Daignton Farm, 53 a. 1 r. 36 p., f. 2,500
Various enclosures, 71 a. 3 r. 37 p., f. 2,670

November 4.—Dennant & Co.

Deptford.—210, 212, and 214, High-st. (S), f., y.r. 200*l.* 3,810
Greenwich.—28 to 38 (even), Aldeburgh-st. f., y.r. 156*l.* 1,835

By Leopold Farmer & Sons.

St. John's Wood.—73, Carlton-hill, u.t. 58 yrs., g.r. 11*l.* 11s., e.r. 80*l.* 600

By Ogden, Sons, & Olley.

Mitcham, Surrey.—6, Baron-gr., f., p. 1,430

By H. & R. Powell.

Woking, Surrey.—Wych-st. lane, Messina, f., e.r. 110*l.* 1,775

By Walter Simmonds.

Camberwell.—28, Graces-rd., u.t. 56¼ yrs., g.r. 5*l.* 10s., y.r. 32*l.* 295

By Humbert & Flint (at Watford).

Watford, Herts.—Rickmansworth-rd., Cassio Bridge Farmhouse and 3 a. 3 r. 19 p., f., p. .. 1,710
Rickmansworth-rd., three cottages and 2 a. 0 r. 22 p., f., w.r. 46*l.* 16s. 1,000

By J. C. Platt (at Hammersmith).

Hammersmith.—3, 5, 7, and 9, Eyot-gdns., u.t. 74 yrs., g.r. 24*l.*, w.r. 101*l.* 8s. 770
Chiswick.—1, 3, and 5, Upham Park-rd., u.t. 67 yrs., g.r. 15*l.* 15s., y.r. 100*l.* 915
3, Wilton-av., u.t. 95 yrs., g.r. 7*l.*, w.r. 52*l.* 380

By Fleuret, Sons, & Adams (at Masons' Hall Tavern).

Holloway.—Seven Sisters'-rd., The Bedford Tavern, u.t. 50 yrs., y.r. 110*l.*, with goodwill 14,510
Lambeth.—Lower Marsh, The Three Compasses, p.h., profit rental of 50*l.* for 15½ yrs. 420
Haymarket.—Little Pulteney-st., The Queen's-Head, p.h., profit rental of 30*l.* for 7½ yrs. 120
Blackfriars.—Webber-st., The Half-way House, p.-h., profit rental of 86*l.* 8s. for 43 yrs., with reversion 1,500
Webber-st., The Angel p.h., profit rental of 30*l.* for 40 yrs., with reversion 820

By S. H. Baker (at Masons' Hall Tavern).

Kensington.—Abingdon-rd. The Abingdon, p.-h., u.t. 45 yrs., y.r. 100*l.*, with goodwill 8,350

November 5.—By Broad, Wiltshire, & Penny.

Canning Town.—Young-st., f.g.r's. 30*l.*, reversion in 54 yrs. 600
Peckham.—99, 101, 103, and 105, Gordon-rd., u.t. 65 yrs., g.r. 24*l.*, y.r. 132*l.* 960
135, 137, and 139, Gordon-rd., u.t. 65 yrs., g.r. 18*l.*, y.r. 99*l.* 710
Sydenham.—60, West-hill, u.t. 39 yrs., g.r. 12*l.* 17s., y.r. 70*l.* 375
Walthamstow.—56, St. James-st. (S), f., e.r. 75*l.* 810
Homerton.—10 and 11, Nisbet-pl. (warehouses), u.t. 77 yrs., g.r. 16*l.*, y.r. 76*l.* 300

By H. Donaldson & Son.

Dalston.—181, Queen's-rd., u.t. 15 yrs., g.r. 6*l.*, e.r. 40*l.* 190

By Drysdale, Nurse, & Co.

Wanstead.—Dover-rd., Beechdene, Strathmore, and Oakleigh, f., p. 1,780
Stoke Newington.—35, Nevill-rd., y.r. 28*l.*; also i.g.r. 11*l.* 5s., u.t. 62 yrs., g.r. 4*l.* 2s. 6d. 365

By Foster & Cranfield.

Chelsea.—45, Oakley-st., u.t. 58¼ yrs, g.r. 8*l.*, y.r. 110*l.* 1,400

By Hillyer & Hillyer.

Wood Green.—41, 43, and 47, Nightingale-rd., u.t. 60 yrs., g.r. 11*l.* 10s., w.r. 75*l.* 8s. 300
Tottenham.—1, 3, and 5, Alexandra-cottages, u.t. 63½ yrs., g.r. 10*l.* 10s., w.r. 66*l.* 220
7, Langham-rd., u.t. 75 yrs., g.r. 5*l.* 10s., w.r. 32*l.* 10s. 205
62 to 70 (even), Gloucester-rd., u.t. 95 yrs., g.r. 27*l.* 10s., w.r. 190*l.* 1,300
117, Harringay-rd., u.t. 77 yrs., g.r. 6*l.* 6s., w.r. 39*l.* 240

By Glasier & Sons.

Bayswater.—33, Pembridge-villas, u.t. 40½ yrs., g.r. 9*l.*, e.r. 80*l.* 820
Strand.—No. 54 (S), u.t. 13¾ yrs., y.r. 320*l.* 250
Southwark.—6, Railway Approach (S), u.t. 63 yrs., g.r. 95*l.*, y.r. 328*l.* 1,500
Peckham.—25, Trafalgar-sq., u.t. 73 yrs., g.r. 6*l.*, y.r. 30*l.* £125

By W. T. Marsh.

Kensington.—Wright's-lane, Scarsdale Lodge, f., p. 3,550

By Newbon, Edwards, & Co.

Bowes Park.—2, 4, 8 to 32 (even), Parkhurst-rd., f., y.r. 408*l.* 5,830
Parkhurst-rd., f.g.r. 6*l.*, reversion in 81 yrs. 155
Holloway.—91 and 93, Seven Sisters-rd. (S), profit rental of 170*l.* for 4¾ yrs. 570
Stamford Hill.—138, St. Ann's-rd. (S), ut. 72 yrs., g.r. 8*l.*, y.r. 40*l.* 360
Finsbury Park.—52 and 54, Romilly-rd., u.t. 65 yrs., g.r. 6*l.*, y.r. 76*l.* 850
Streatham.—94 to 102 (even), Wellfield-rd., u.t. 61 yrs., g.r. 20*l.*, w.r. 184*l.* 12s. 1,160
Highbury.—83 and 85, Highbury-quadrant, u.t. 17 yrs., g.r. 15*l.*, y.r. 87*l.* 755

By Salter, Rex, & Co.

Camden Town.—81, Camden-rd. and 5, Rochester-mews, u.t. 29 yrs., g.r. 6*l.*, y.r. 72*l.* 460
Kentish Town.—41, Chetwynd-rd., u.t. 71 yrs., g.r. 7*l.* 7s., y.r. 42*l.* 455
Holloway.—4, Hargrave-pk., u.t. 59 yrs., g.r. 7*l.* 7s., e.r. 50*l.* 200
Wood Green.—90, Winkfield-rd., u.t. 64 yrs., g.r. 4*l.*, y.r. 21*l.* 10s. 460

By Stimson & Sons.

Newington Butts.—22 and 24, Peacock-st., f., y.r. 24*l.* 315
Herne Hill.—204, Milkwood-rd., u.t. 63½ yrs., g.r. 6*l.*, y.r. 30*l.* 885
Wimbledon.—2, 4 and 6, Gilbert-rd., f., w.r. 84*l.* 10s. 165
Haydons-rd., corner plot of building land, f. ..
Norwood.—167 and 169, Albert-rd., u.t. 40 yrs., g.r. 7*l.*, w.r. 44*l.* 4s. 295
Belvedere, Kent.—1 to 4, River View, u.t. 55 yrs., g.r. 10*l.* 10s., y.r. 67*l.* 800
Northfleet, Kent.—39, Springhead-rd., f., w.r. 16*l.* 8s. 150
Stratford.—58, 59, 60, 63, 65, 66 and 68, Forest-lane (S), u.t. 84½ yrs., g.r. 45*l.*, y.r. 260*l.* 1,980
Walworth.—71, Mann-st., u.t. 49 yrs., g.r. 5*l.* 10s., w.r. 46*l.* 16s. 315
Plaistow.—274, Barking-rd. (S), f., y.r. 70*l.* 1,030
Tooting.—1, 2, and 4, Pine-villas, u.t. 94 yrs., g.r. 16*l.* 10s, y.r. 107*l.* 640
Camberwell.—15, 17, 19, and 21, Denmark Hill (S), f., y.r. 289*l.* 4,675
New Cross.—2, 4, and 6, Lubbock-st., u.t. 63½ yrs., g.r. 10*l.* 10s., w.r. 79*l.* 6s. 560

By Joseph Stower.

Ludgate Hill.—9, Broadway (S), f., y.r. 130*l.* 3,000
City of London.—68, Carter-lane (publishing premises), u.t. 57 yrs., g.r. 200*l.*, y.r. 600*l.* 6,500

By Woods & Snelling (on premises).

Salisbury.—Market-sq., the Clough Hotel, freehold rental of 200*l.*, reversion in 7 yrs. 7,050

November 7.—By Faraday & Rodgers.

Camden Town.—83, 85, and 87, Arlington-rd., f., y.r. 108*l.* 1,720
120, Camden-st., u.t. 37 yrs., g.r. 6*l.*, y.r. 46*l.* .. 525

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; w.r. for weekly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 13 0	per 1,000 alongside, in river.
Rough Stocks and Grizzles	1 10 0	,, ,, ,,
Facing Stocks	2 12 0	,, ,, ,,
Shippers	2 5 0	,, ,, ,,
Flettons	1 6 0	,, at railway depôt
Red Wire Cuts	1 12 0	,, ,, ,,
Best Fareham Red	3 12 0	,, ,, ,,
Best Red Pressed Ruabon Facing.	5 0	,, ,, ,,
Best Blue Pressed Staffordshire	4 5 0	,, ,, ,,
Do., Bullnose	4 11 0	,, ,, ,,
Best Stourbridge Fire Bricks	4 8 0	,, ,, ,,
Glazed Bricks.		
Best White and Ivory Glazed Stretchers	13 0 0	,, ,, ,,
Headers	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	17 0 0	,, ,, ,,
Double Stretchers	19 0 0	,, ,, ,,
Double Headers	16 0 0	,, ,, ,,
One Side and two Ends	19 0 0	,, ,, ,,
Two Sides and one End	20 0 0	,, ,, ,,
Splays, Chamfered, Squints	20 0 0	,, ,, ,,
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	14 0 0	,, ,, ,,
Double Stretchers	15 0 0	,, ,, ,,
Double Headers	14 0 0	,, ,, ,,
One Side and two Ends	15 0 0	,, ,, ,,
Two Sides and one End	15 0 0	,, ,, ,,
Splays, Chamfered, Squints	14 0 0	,, ,, ,,
Seconds Quality White and Dipped Salt Glazed	2 0 0	,, less than best.
Thames and Pit Sand	7 0	per yard, delivered.
Thames Ballast	6 0	,, ,,

PRICES CURRENT (*Continued*).

BRICKS, &c.

	s. d.	
Best Portland Cement	31 0	per ton, delivered.
Best Ground Blue Lias Lime	22 0	,, ,,

Note.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	10s. 6d.	per yard, delivered.
Stourbridge Fire-clay in sacks, 27s. 0d.		per ton at rly. dpt.

STONE.

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deld. rly. depot
Bath ,,	1 7	,, ,,
Farleigh Down Bath	1 8	,, ,,
Beer in blocks	1 6	,, ,,
Grinshill ,,	1 10	,, ,,
Brown Portland in blocks	2 2	,, ,,
Darley Dale in blocks	2 4	,, ,,
Red Corsehill ,,	2 5	,, ,,
Closeburn Red Freestone	2 0	,, ,,
Red Mansfield ,,	2 4	,, ,,
York Stone—*Robin Hood Quality.*		
Scappled random blocks	2 10	,, ,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per foot super.
6 in. Rubbed two sides Ditto, Ditto	2 6	,, ,,
3 in. Sawn two sides slabs (random sizes)	0 11½	,, ,,
2 in. to 2½ in. Sawn one side slabs (random sizes)	0 7½	,, ,,
1½ in. to 2 in. ditto, ditto	0 6	,, ,,
Best Hard York—		
Scappled random blocks	3 0	per ft. cube ,,
6 in. sawn two sides, landings to sizes (under 40 ft. sup.)	2 8	per ft. super. ,,
6 in. Rubbed two sides Ditt		,, ,,
3 in. sawn two sides slabs (random sizes)	1 2	,, ,,
2 in. self-faced random flags	0 5	,, ,,
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube. deld. rly. depôt.
,, ,, ,, 6 in. sawn both sides landings	2 7	per ft. super. deld. rly. depôt.
,, ,, ,, 3 in. do.	1 2½	,, ,,

SLATES.

in. in.	£ s. d.	
20×10 best blue Bangor	13 2 6	per 1000 of 1200 at ry. dep⁷
20×12 ,, ,, ,,	13 17 6	,, ,,
20×10 best seconds ,,	12 15 0	,, ,,
20×12 ,, ,, ,,	13 10 0	,, ,,
16×8 best ,,	7 0 0	,, ,,
20×10 best blue Portmadoc	12 5 0	,, ,,
16×8 best blue Portmadoc	6 0 0	,, ,,
20×10 best Eureka unfading green	15 0 0	,, ,,
20×12 ,, ,,	16 10 0	,, ,,
18×10 ,, ,,	11 10 0	,, ,,
16×8 ,, ,,	8 7 6	,, ,,
20×10 permanent green	10 10 0	,, ,,
18×10 ,, ,,	9 0 0	,, ,,
16×8 ,, ,,	6 5 0	,, ,,

TILES.

	s. d.	
Best plain red roofing tiles	42 0	per 1,000, at rly.
Hip and valley tiles	3 7	per doz.
Best Broseley tiles	50 0	per 1,000
Do. Ornamental tiles	52 6	,,
Hip and valley tiles	4 0	per doz.
Best Ruabon Red, brown or brindled Do. (Edwards)	57 6	per 1,000
Do. ornamental Do.	60 0	,,
Hip tiles	4 0	per doz.
Valley tiles	3 ,,	,, ,,
Best Red or Mottled Staffordshire Do. (Peakes)	51 0	per 1,000
Do. Ornamental Do.	54 6	,,
Hip tiles	4 1	per doz.
Valley tiles	3 8 ,,	,, ,,
Best "Rosemary" brand plain tiles	48 0	per 1,000
Do. Ornamental Do.	50 0	,,
Hip tiles	4 0	per doz.
Valley tiles	3 8 ,,	,, ,,

WOOD.

Building Wood.—Yellow.

	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	15 10 0	16 10 0
Deals: best 3 by 9	14 10 0	15 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 10 0	12 10 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0	,, ,, ,,
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	9 10 0
2 in. by 4½ in. and 2 in by 5 in.	8 12 0	9 10 0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	,,
Fir timber: Best middling Danzig or Memel (average specification)	At per load of 50 ft. 4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	3 10 0
Swedish balks	2 15 0	3 0 0
Pitch-pine timber (30 ft. average)	3 5 0	3 15 0

Joiners' Wood. At per standard.

White Sea: First yellow deals, 3 in. by 11 in.	23 0 0	24 0 0
3 in. by 9 in.	21 0 0	22 10 0
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	18 10 0
Second yellow deals, 3 in. by 11 in.	18 10 0	20 0 0
,, ,, 3 in. by 9 in.	17 10 0	19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	15 10 0	16 10 0
Battens, 2½ in. and 3 in. by 7 in.	11 10 0	12 10 0

[*See also next page.*

COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
*Central Home and Cottage Homes for Children	Kingston Guardians	25*l.*, 15*l.*, and 10*l.*	Jan. 15
*New Public Library	Workington Corporation	25*l.*, 15*l.* and 10*l.*	Jan. 20
Designs for University Buildings, Cape of Good Hope	Agnt.-Gen. for Cape of Good Hope	400*l.*, 200*l.*, 100*l.*	Jan. 31

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., Supplied by	Tenders to be delivered
Bricks and Cement	Rhyl (Wales) U.D.C.	L. G. Hall, Civil Engineer, Paradise-street, Rhyl	Nov. 17
Shed, &c., Lumley-street	Sheffield Corporation	C. F. Wike, Civil Engineer, Town Hall, Sheffield	Nov. 18
Granite road-metal, Hindes-road	Wealdstone (Middlesex) U.D.C.	F. Hill-Pair, Civil Engineer, Wealdstone	do.
School, West Hill	Dartford School Board	H. Hall, Architect, 19, Doughty-street, W.C.	do.
Ten Cottages, Windmill-lane	Drogheda Corporation	Borough Surveyor, Town Hall, Drogheda	do.
Additions to Premises, Finkle-street, Kendal	Messrs. W. Musgrove & Son	S. Shaw, Architect, Highgate, Kendal	do.
Additions to Hospital	Swansea Hospital Committee	G. Moxham, Architect, Castle-street, Swansea	do.
Schools, Jenning-street	Swindon School Board	Bishop & Pritchett, Architects, Swindon	do.
Additions, &c., to Chapel, Trinity-road, Halifax		Utley & Co., 10, Waterhouse-street, Halifax	Nov. 19
Homes, Hall, &c., Downend	Bristol Guardians	La Trobe & Western, Architects, 20, Clare-street, Bristol	do.
Cement, &c. (75 tons)	Llandudno U.D.C.	E. P. Stephenson, Civil Engineer, Town Hall, Llandudno	do.
Widening Suspension Bridge	Conway Bridge Commissioners	J. J. Webster, Civil Engineer, 39, Victoria-street, S.W.	do.
Schools, Denton-street, Carlisle		W. H. Brierley, Architect, Lendal, York	Nov. 20
Station Buildings, &c, Nottingham	Midland Railway Company	Engineer, Midland Railway Station, Derby	do.
Buildings, Granuha, Londonderry		M. A. Robinson, Architect, Richmond-street, Londonderry	Nov. 21
Residence, Coast Guard Station, Greenock	The Admiralty	Director, Wrks. Dept., Admiralty, 21, Northumberland-av., W.C.	do.
Additions to School, Pwll, Llanelly	Pembrey School Board	R. Williams, Architect, Burry Port, Llanelly	do.
*Coastguard Buildings, at Grove Point, Portland	The Admiralty	Works Department, Admiralty, Northumberland-avenue, W.C.	do.
*Revised Tenders for Generatg. Stn., Offices & Car Shed	Pontypridd U.D.C.	R. F. Wilson, 66, Victoria street, Westminster, S.W.	Nov. 22
*Two Concrete & Brick Gasholder Tanks, Foleshill Wks	Coventry Corporation	F. W. Stevenson, Gas Works, Coventry	do
Additions, &c., Commercial Hotel, Forres, N.B.		J. Forrest, Architect, Forres	do.
Water-supply Works	Aspatria (Cumberland) Water Co.	Pickering & Crompton, Cvl. Engrs., 11, Lowther-st., Whitehaven	do.
Additions, &c., Bank House, Carmarthen	Carmarthenshire County Council	D. Phillips, Surveyor, Carmarthen	do.
Eighty-two Cottages, Blackley Estate	Manchester Corporation	City Architect, Town Hall, Manchester	do.
Laundry Buildings, Llwynypia	Pontypridd Guardians	A. O. Evans, Architect, Pontypridd	do.
School Buildings	Lochwinnoch School Board	C. Davidson, Architect, Terrace Buildings, Paisley	do.
Ironwork (117 tons) Foleshill	Coventry Corporation	F. W. Stevenson, Engineer, Gasworks, Coventry	Nov. 23
Technical School, &c.	Brierley Hill (Staffs) U.D.C.	J. L. Harpur, Surveyor, Town Hall, Brierley Hill	Nov. 24
Additions to Schools, Hollington	Hastings (U.D.) School Board	C. A. Pigott, Architect, London-road, St. Leonards	do.
Public Convenience, Rock-a-Nore-road	Hastings Corporation	P. H. Palmer, Engineer, Town Hall, Hastings	do.
Road Works, &c., near Farrar-road	Bangor (Ireland) Town Council	J. Gill, Civil Engineer, Bangor	do.
Sewers, &c.	Lewes Town Council	Borough Surveyor, Town Hall, Lewes	do.
Pavilion at Recreation Ground	St. Albans Corporation	City Surveyor, Town Hall, St. Albans	do.
Flags and Kerbs	Middlesbrough Corporation	Borough Engineer, Municipal Buildings, Middlesbrough	do.
Reservoir, near Dalry, Ayrshire	Irvine (N.B.) Corporation	Leslie & Reed, Civil Engineers, 72A, George-street, Edinburgh	Nov. 25
*Making-up Glasgow, Tweedmouth, Stirling, &c., roads	County Borough of West Ham	Borough Engineer, Town Hall, West Ham, E.	do.
*Supply of Horse Ambulance	West Ham Union	Master of Workhouse, Leytonstone, N.E.	Nov. 24
*Making-up and Paving Road	Fulham Borough Council	Borough Surveyor, Town Hall, Fulham, S.W.	do.
*Porter's Lodge at Crown Hill, West Norwood	Lambeth Guardians	Clerk to the Guardians, Brook-street, Kennington-road, S.E.	do.
*Erection of Offices	Bristol Water Works Co.	H. Williams, Architect, Alliance Chambers, Corn-street, Bristol.	Nov. 27
*Laying New Fire Mains at Workhouse	Islington Guardians	W. Smith, Architect, 65, Chancery-lane, W.C.	do.
*Supply of Encaustic Tablets	London County Council	County Hall, Spring Gardens, S.W.	Nov. 28
*Furniture for Farmer-road School	Leyton School Board	W. Jacques, Architect, 2, Fen-court, Fenchurch-street, E.C.	Dec. 1
*Superstructure of Eversley Bridge	Southampton County Council	County Surveyor, The Castle, Winchester	do.
Sewers, &c., near Millbay Pier	Plymouth Corporation	J. Mausergh & Sons, Civil Engineers, 5, Victoria-street, S.W.	do.
Sewerage Works	do.	do.	do.
*Making-up Roads, Muswell Hill	C. J. Hayter, Esq.	Vigers & Co., 4, Frederick's-place, Old Jewry	do.
*Superstructure of Museum, South Kensington	Commissioners of H.M. Works, &c	Aston Webb, Architect, 19, Queen Anne's-gate, S.W.	Dec. 11
*Block of Residential Flats, Ealing		Palgrave & Co., Architects, 28, Victoria-street, S.W.	No date
*Purchase of Surplus Stores	London County Council	Manager of Works, Belvedere-road S.E.	do.
Rebuilding Business Premises, Market-st., Bradford	Messrs. Emsley and Mosley	Messrs. Mosley, 6, Wormald-row, Leeds	do.
Repairing Church, Dundyvan, Coatbridge, N.B.	Trustees	A. Cullen, Architect, Brandon Chambers, Hamilton, N.B.	do.
Three Houses, William-street, Ashton-under-Lyne		T. George & Sons, Architects, Old Square, Ashton-under-Lyne	do.
House, Rusper, Sussex	Mr. W. Cobb	J. P. Briggs, Architect, Effingham House, Arundel-st., Strand	do.
House, Coundon, near Bishop Auckland		J. W. Taylor, Architect, Newcastle-on-Tyne	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Application to be in
*Draughtsman	Hackney Borough Council	2*l.* 2s. per week	Nov. 18
*Teaching of Drawing	Secretary of State for the Colonies	4,000 Rupees per annum	Nov. 20
*Clerk of Works	Islington Borough Council	3*l.* 10s. per week	Nov. 22
*Clerk of Works	London County Council	Not stated	Nov. 24

Those marked with an asterisk (*) are advertised in this Number. — *Competitions*, iv. *Contracts, pp.* iv. vi. viii. x. & xx. *Public Appointments*, xvii.

PRICES CURRENT (*Continued*).

WOOD.

	At per standard. £ s. d.	£ s. d.
Petersburg: first yellow deals, 3 in. by 11in.	21 0 0	22 10 0
Do. 3 in. by 9 in.	18 0 0	19 10 0
Battens	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in.	14 10 0	16 0 0
Battens	11 10 0	12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	14 0 0
Do. 3 in. by 9 in.	13 0 0	14 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg:—		
First white deals, 3 in. by 11 in.	14 10 0	15 10 0
" " 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Second white deals 3 in. by 11 in.	13 10 0	14 10 0
" " " 3 in. by 9 in.	12 10 0	13 10 0
" " " battens	9 10 0	10 10 0
Pitch-pine: deals	16 0 0	18 0 0
Under 2 in. thick extra	0 10 0	1 0 0

PRICES CURRENT (*Continued*).

WOOD.

	At per standard. £ s. d.	£ s. d.
Yellow Pine—First, regular sizes	33 0 0	upwards.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—Planks, per ft. cube	0 3 6	0 4 6
Danzig and Stettin Oak Logs—Large, per ft. cube	0 2 6	0 3 6
Small " "	0 2 3	0 2 6
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 7	0 0 8
in. do. do.	0 0 6½	- - -
Dry Mahogany—		
Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	16 10 0	20 0 0

PRICES CURRENT (*Continued*).

WOOD.

	At per standard. £ s. d.	£ s. d.
American Whitewood Planks—		
Per ft. cube	0 4 0	- - -
Prepared Flooring—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 1 6
1 in. by 7 in. white, planed and shot	0 11 6	0 13 6
1 in. by 7 in. white, planed and matched	0 12 0	0 14 0
1¼ in. by 7 in. white, planed and matched	0 14 6	0 16 6
¾ in. by 7 inch yellow matched and beaded or V-jointed boards	0 11 0	0 13 6
1 in. by 7 in. do. do. do.	0 14 0	0 16 0
¾ in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do. do.	0 11 6	0 13 6

† 6-in. at 6d. to 9d. per square less than 7-in.

PRICES CURRENT (*Continued*).

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0	7 5 0
Compound Girders " "	8 2 6	9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6	8 17 6
Flitch Plates	8 5 0	8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6	8 5 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON—		
Common Bars	7 15 0	8 5 0
Staffordshire Crown Bars, good merchant quality	8 5 0	8 15 0
Staffordshire "Marked Bars"	10 10 0	- - -
Mild Steel Bars	9 0 0	9 10 0
Hoop Iron, basis price	9 5 0	9 10 0
" " galvanised	16 0 0	. . .
("* And upwards, according to size and gauge.)		
Sheet Iron, Black.—		
Ordinary sizes to 20 g.	10 0 0	- - -
" " to 24 g.	11 0 0	- - -
" " to 26 g.	12 10 0	- - -
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes 6 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0	- - -
" " 22 g. and 24 g.	13 5 0	- - -
" " 26 g.	14 5 0	- - -
Sheet Iron, Galvanised, flat, best quality:—		
Ordinary sizes to 20 g.	16 0 0	- - -
" " 22 g. and 24 g.	16 10 0	- - -
" " 26 g.	18 0 0	- - -
Galvanised Corrugated Sheets:—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0	- - -
" " 22 g. and 24 g.	13 5 0	- - -
" " 26 g.	14 5 0	- - -
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12 0 0	- - -
" " 22 g. and 24 g.	13 0 0	- - -
" " 26 g.	14 5 0	- - -
Cut nails, 3 in. to 6 in.	9 5 0	9 15 0
(Under 3 in. usual trade extras.)		

LEAD, &c.

	Per ton in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	13 7 6	- - -
Pipe in coils	13 17 6	- - -
Soil Pipe	16 7 6	- - -
Compo Pipe	16 7 6	- - -
ZINC—Sheet—		
Vieille Montagne ton	25 0 0	- - -
Silesian	24 10 0	- - -
COPPER—		
Strong Sheet per lb	0 0 10	- - -
Thin "	0 0 11	- - -
Copper nails "	0 0 11	- - -
BRASS—		
Strong Sheet "	0 0 9	- - -
Thin "	0 0 10	- - -
TIN—English Ingots "	0 1 3	- - -
SOLDER—Plumbers' "	0 0 6½	- - -
Tinmen's "	0 0 8½	- - -
Blowpipe "	0 0 9½	- - -

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2¾d. per ft. delivered.
" fourths	1¾d. " "
21 oz. thirds	3½d. " "
" fourths	2¾d. " "
26 oz. thirds	4d. " "
" fourths	3½d. " "
32 oz. thirds	5d. " "
" fourths	4½d. " "
Fluted sheet, 15 oz.	3d. " "
" 21 "	4d. " "
¼ Hartley's Rolled Plate	1¾d. " "
⅜ " " "	2d. " "
½ " " "	2½d. " "

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes or barrels	per gallon	0 2 3
" " " in drums	"	0 2 6
Boiled " " in pipes or barrels	"	0 2 5
" " " in drums	"	0 2 8
Turpentine, in barrels	"	0 3 3
" in drums	"	0 3 5
Genuine Ground English White Lead	per ton	21 0 0
Red Lead, Dry	"	20 0 0
Best Linseed Oil Putty	per cwt.	0 8 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 6
Superfine Hard-drying Oak, for Seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

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We are compelled to decline pointing out books and giving addresses.

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All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BEXHILL (Sussex).—For the erection of shelter hall, &c., Egerton Park-road, for the Urban District Council. Mr. G. Ball, C.E., Town Hall, Bexhill:—

Ironwork of Roof, Glazing, &c.

Howard & Co.	£1,548 0	Whitford & Co.	£514 0
Jones & Sons	654 5	E. C. & J. Keay, Ltd., Birmingham*	460 0
Main & Co.	634 0		
Bain & Co.	624 0		
J. Every	621 0		

Building.

W. and E. Noakes	£1,780 0	W. H. Bailey	£1,659 10
F. W. Parker	1,680 0	T. W. Dexter, Bexhill*	1,514 0

CARDIFF.—For the erection of new premises in Tunnel-court. Mr. Edgar G. C. Down, architect, 31, High-street, Cardiff. Quantities by architect:—

Lattey & Co.	£657 3 2	Turner & Sons	£567 0 0
W. T. Morgan	590 0 0	Thomas & Co.	555 0 0
D. W. Davies	540 0 0	G. Griffiths	550 0 0
Jas. Allan	570 0 0	Knox & Wells	515 0 0
Price Bros.	563 0 0	W. Symonds*	500 0 0

LANGTOFT (Yorks).—For the erection of school buildings, for the School Board. Mr. Joseph Shepherdson, architect, 14, Middle-street South, Driffield:—

Thompson, Sawden, & Sons, Langtoft, Driffield* £1,670

LONDON.—For alterations to premises, new shop, &c., 45, Dover-street, Piccadilly, W., for Messrs. Spiking & Co. Messrs. Blangy & Van Baars, architects, Southampton-buildings, W.C.:—

Sage & Co.	£1,544	Stimpson & Co.	£1,365
Syme & Duncan	1,500	Lole & Lightfoot*	1,287
Turtle & Appleton	1,445		

LONDON.—For alterations to shop and offices, No. 113, Tottenham Court-road, W., for Messrs. Jealous & Saul. Mr. A. J. Perriam, architect and surveyor, 43, Cannon-street, E.C.:—

Gould & Brand	£1,199	Marchant & Hirst*	£1,137

LONDON.—For reconstructing Old Kent-road Bridge, for the London County Council:—

Westwood & Co.	£3,491 18 1
Mowlem & Co.	3,222 0 0
J. A. Ewart	3,123 7 6
W. Manders	3,005 1 5
Cochrane & Sons	2,969 2 8
Fasey & Son	2,911 3 0
M. Dinnie*	2,491 15 8

LONDON.—For first portion of new cable factory at North Woolwich, E., for the Western Electric Company. Messrs. Ardron & Dawson, architects, 6, Old Queen-street, Westminster, S.W.:—

Mowlem & Co.	£23,159	Kirk & Randall	£20,377
Foster & Dicksee	22,844	Holliday & Greenwood	20,377
Holloway Bros.	22,110	Patman & Fotheringham	20,173
Holland & Hannen	21,705	Chessum & Sons	19,997
Downs	21,229	Grover & Son‡	19,734
Higgs & Hill	20,973		
Lawrence & Sons	20,955		
Lovatt & Roberts	20,500		

‡ Accepted, subject to reductions, at £18,402.

Ironwork.—Shaw & Co. £3,200 0
Pile-driving.—Chafent Newman 1,598 0
Fire Mains.—Aiton & Co. 853 7

LOUGHBOROUGH (Leicestershire).—For the erection of school buildings, Rendell-street, for the School Board. Messrs. Barrowcliff & Allcock, architects, Mill-street, Loughborough:—

C. Wright	£4,350 0 0	Watson & Camm	£4,168 15 6
Moss & Sons, Ltd.	4,302 0 0	Barker & Son.	4,096 0 0
W. F. Harding	4,223 0 0	W. Corah	4,000 0 0
C. A. Dobson.	4,207 10 0	A. Faulks, Loughboro'†	3,995 0 0

NEWBRIDGE (Mon.).—For the erection of twenty-eight houses, for the Abercarn Urban District Council. Mr. Geo. Stevens, surveyor, Council Offices, Abercarn:—

Farrow Bros., Newport* £4,895

SKIPTON (Yorks).—For the erection of a sanatorium for consumptives, Eastby, for the Bradford Board of Guardians. Mr. Fred. Holland, engineer, 11, Parkinson's Chambers, Hustlergate, Bradford:—

Masonry.—E. Balmforth, Queensbury*	£1,192 10 0
Carpentry and Joinery.—A. H. Shaw, Skipton*	522 6 10
Plumbing.—W. & J. Harrison, Keighley*	247 0 0
Plastering.—J. Greenwood, Cross Hills*	112 0 4
Slating.—Thornton & Sons, Skipton*	89 15 0
Painting.—Harland & Sons, Bradford*	41 0 0

SOUTHAMPTON.—For building shop, &c., 50, East-street, for Mr. John H. Boyes, butcher, Southampton. Mr. W. Warwick Neil, joint architect with Mr. A. A. Burnett, Southampton. Quantities by Mr. W. W. Neil:—

Dyer & Son	£1,280	H. Cawte	£1,170
Jenkins & Son, Ltd.	1,273	C. G. Stent	1,120
Stevens & Co.	1,267	Wright & Son*	1,115

[All of Southampton.]

STRATFORD.—For Depository at Stratford, for Messrs. C. Boardman & Sons. Messrs. George Baines & R. Palmer Baines, architects, 5, Clement's Inn, Strand, London, W.C.:—

	Est. "A." £	Est. "B." £ s.	Extra for Seyssell Asphalt. £ s.	Credit if Fletton Bricks are used. £
G. F. Hosking	3,925	22 10	20 0	26
Johnson & Co.	3,900	21 0	21 0	25
Mattock Bros.	3,797	36 0	29 0	10
Battley, Sons, & Holness	3,729	20 0	18 10	30
Turtle & Appleton	3,635	19 0	22 0	nil
F. & H. F. Higgs	3,609	23 0	14 0	nil
Gough & Co.	3,374	20 0	18 5	40
C. North, Manbey-rd., Stratford.*	3,164	30 0	33 0	30

WELSHPOOL.—For the erection of a cottage hospital for the Victoria Nursing Institute. Mr. F. H. Shayler, architect, Kenneth-chambers, Shrewsbury:—

G. Bullock	£1,627 0	M. H. Thomas	£1,499 0
E. H. Nicholas	1,593 0	E. Davies, Welshpool*	1,358 0
Price & Sons	1,590 0		
M. Felton	1,559 10		

WESHAM (Lancs.).—For the erection of a workhouse, &c., for the Fylde Union Guardians. Messrs. Haywood & Harrison, architects, Accrington and Lytham. Quantities by the architect:—

S. Wilson, St. Andrew's-road, S. £43,996

Thirty-four tenders were not sent in.

WROTHAM.—For house and stables at Hognore Hill, Wrotham, Kent, for Mr. Charles Garton. Mr. Edward Tidman, architect, 34, Victoria-street, Westminster. Quantities by Messrs. J. Lee & Sons, 35, Craven-street, Strand:—

	House.	Stable.
W. H. Archer	£2,898 6	£325 0
Elmore & Sons	2,880 0	320 0
Corben	2,830 0	233 0
Banks	2,761 10	243 10
Emmett	2,592 0	309 0
Wiltshire	2,526 0	293 0
Igguldeen	2,508 14	346 0
Kimpton & Ranger	2,294 7	302 2
Woods	2,075 5	335 0
Wood & Sons, Boughton, Monchelsea, Maidstone‡	1,900 0	210 0

‡ Modified and accepted.

LONDON SCHOOL BOARD TENDERS.

At the last meeting of the London School Board, the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's Architect:—

EAST LAMBETH (Ivydale-road) — Enlargement. Boys', 116; girls', 116; infants', 128. Total, 360. Classrooms—Boys', 60, 56; girls', 60, 56; infants', 65, 63. Providing new staircase for boys, additional cloakrooms and lavatories for all departments; boys' teachers'-room, stock-rooms, laundry centre, and additional water-closets and drainage:—

W. Downs	£8,101	Rice & Son	£7,445
F. & H. F. Higgs	7,892	Lathey Bros.	7,197
Martin, Wells, & Co., Ltd.	7,794	Holliday & Greenwood, Ltd.	7,179
Mitchell & Son	7,687	Lawrance & Sons	7,105
J. Greenwood	7,635	E. Triggs	7,073
Holloway Bros. (London), Ltd.	7,518	Smith & Sons, Ltd.	6,991
		J. & C. Bowyer*	6,696

See also next page.

FINSBURY—GILLESPIE-ROAD (boys and girls): Removing existing partition and providing two sliding glazed partitions in order to re-divide classrooms B and C into three rooms, including the provision of a lobby in the middle room for direct access to one of the side rooms. Also providing an open fire portable stove for warming the middle room in each case, and constructing brick flues in connexion with same, together with lengthening the windows in the same room :—

Dearing & Son	£563	Wake & Dean, Ltd.	£440
Thompson & Beveridge	518	W. Martin	438
London School Furniture Co.	495	McCormick & Sons	434
		F. Bull*	387

FINSBURY (Rotherfield-street). — Providing sliding glazed partition to divide Classroom B in each department :—

Dearing & Son	£281 0 0	Barrett & Power	£228 0 0
H. Bouneau	255 0 0	McCormick & Sons	222 0 0
London School Furniture Co.	237 14 9	Williams & Sons*	206 0 0

GREENWICH (Kilmorie-road).—Providing and fixing complete low-pressure hot-water apparatus to three halls (boys, girls, infants), also to six classrooms on each floor, drawing classroom, cloakrooms, corridors, and lavatories :—

Paragon Heating Co.	£785	Bates & Son	£509
Wontner-Smith, Gray, & Co.	710	G. & E. Bradley	481
Cannon & Sons	693	Brightside Foundry & Engineering Co., Ltd.	464
Stevens & Sons	660	Duffield & Sons*	427
J. & F. May	588		
R. Clarke	574		

[Provision of £805 included in contract for new school.]

HACKNEY (Berger-road).—Rebuilding offices, all departments; providing additional offices for girls' playground; refitting offices on roof playground; hacking up tar-paving, rearranging levels and falls and repaving, and providing part new drainage scheme :—

Willmott & Sons	£2,420 0 0	R. P. Beattie	£2,163 13 11
G. Neal	2,376 10 0	Johnson & Co.	2,151 10 0
Stevens Bros.	2,246 0 0	J. Peattie	2,120 6 8
Williams & Son	2,231 0 0	Durbin & Katesmark	2,108 0 0
		F. Bull*	2,093 0 0

SOUTHWARK (West-square) — Revised. — Enlargement—boys and girls, 162, on arches. Providing room for practical science, 472 ft. area; demonstration room, 368 ft. area; balance room, &c., and housewifery centre :—

Martin, Wells, & Co., Ltd.	£6,808	Bulled & Co.	£5,617
Smith & Son	6,268	Rice & Son	5,593
T. L. Green	6,238	T. D. Leng	5,579
Johnson & Co., Ltd.	6,180	Johnson & Co.	5,578
F. & H. F. Higgs	5,817	Garrett & Son	5,518
J. Greenwood	5,778	Marsland & Sons	5,444
J. Appleby	5,739	General Builders, Ltd.	5,305
W. Downs	5,639	E. Triggs*	5,266

STORES (Clerkenwell).—Purchase and clearing away of old wood and metal, on a running contract :—

	Wood. Per cubic yard. s. d.		Metal. Per cwt. s. d.
S. E. Bonsall	2 0		2 3*
J. Kelley	3 0		1 0
J. A. Richardson	5 0*		1 6½

TOWER HAMLETS (Smith-street). — Dividing off portion of playground and erecting offices for the use of the girls attending the special school; also providing the necessary drainage and connecting it to an existing chamber :—

J. Shelly	£364 5	F. & F. J. Wood	£270 0
Johnson & Co.	296 0	Vigor & Co.	257 0
G. Parker	289 0	F. Bull	251 0
J. Peattie	288 0	A. W. Derby*	245 0

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WEST LAMBETH (Telferscot-road)—Revised.—Accommodation: Boys and girls, 584; infants, 388—total, 972. Mixed boys' and girls' school on one story, and one-story infants' school. Hall (mixed school), 73 ft. 6 in. by 32 ft. 6 in. Hall (infants' school), 55 ft. by 26 ft. Classrooms (mixed school), 60, 60, 48, 48, 48, 48, 48, 48, 48, 48, 40, 40. Classrooms (infants' school), 56, 50, 50, 48, 48, 48, 48, 40. Drawing classroom and science-room, 1,260 ft. area. Heating by low-pressure hot-water apparatus in mixed school and open fires in infants' school, schoolkeeper's house :—

Lathey Bros	£25,435	C. Cox	£22,127
F. & H. F. Higgs	24,986	King & Son	22,115
Martin, Wells, & Co., Ltd.	24,772	Holliday & Greenwood, Ltd.	21,977
Holloway Bros. (London), Ltd.	23,478	W. Downs	21,974
Simpson & Son	23,149	Gough & Co.	21,934
Garrett & Son	22,753	Stimpson & Co.	21,460
Lawrance & Sons	22,593	J. Carmichael	20,941
Lorden & Son	22,475	J. & M. Patrick	20,699
Spencer, Santo, & Co., Ltd.	22,170	Johnson & Co., Ltd.*	20,578

WINDOW GEARING.—Item (*a*) New Schools :—

	Addison-gardens. £ s. d.	Invicta-road. £ s. d.	Grove-vale. £ s. d.
F. & R. Edbrooke	106 9 2	140 8 4	147 2 0
Carter & Aynsley, Ltd.	95 12 0	129 4 0	132 5 11
J. Gibbons	82 1 1	105 1 0	112 8 3
W. & R. Leggott*	78 12 11	105 2 7	110 13 10

Item (*b*) :—

Carter & Aynsley, Ltd.	£101 12 8	F. & R. Edbrooke	£95 15 0
W. & R. Leggott	101 5 0	J. Gibbons*	75 10 3

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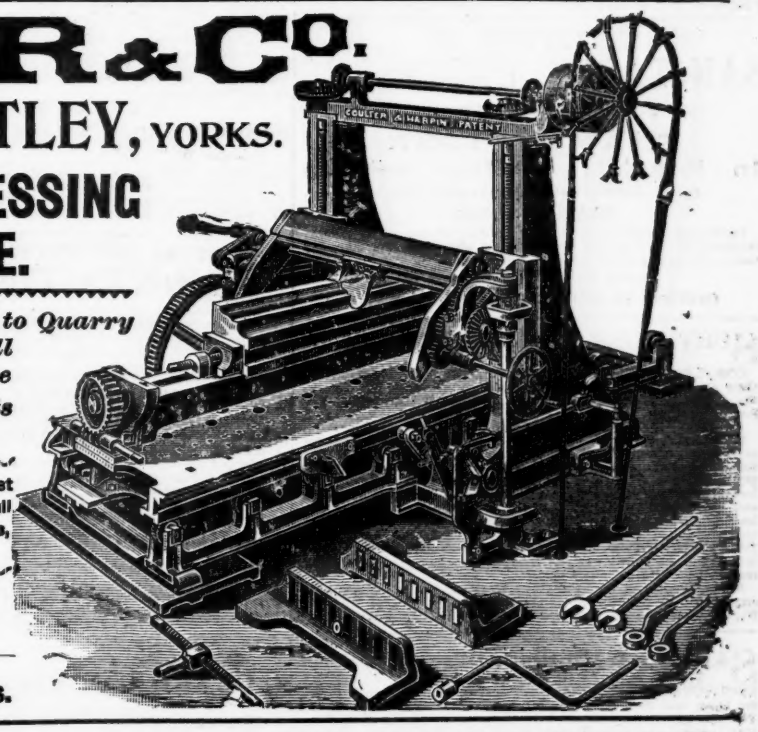

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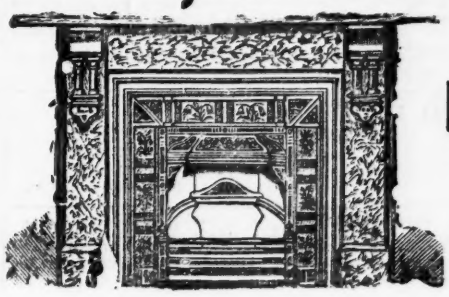

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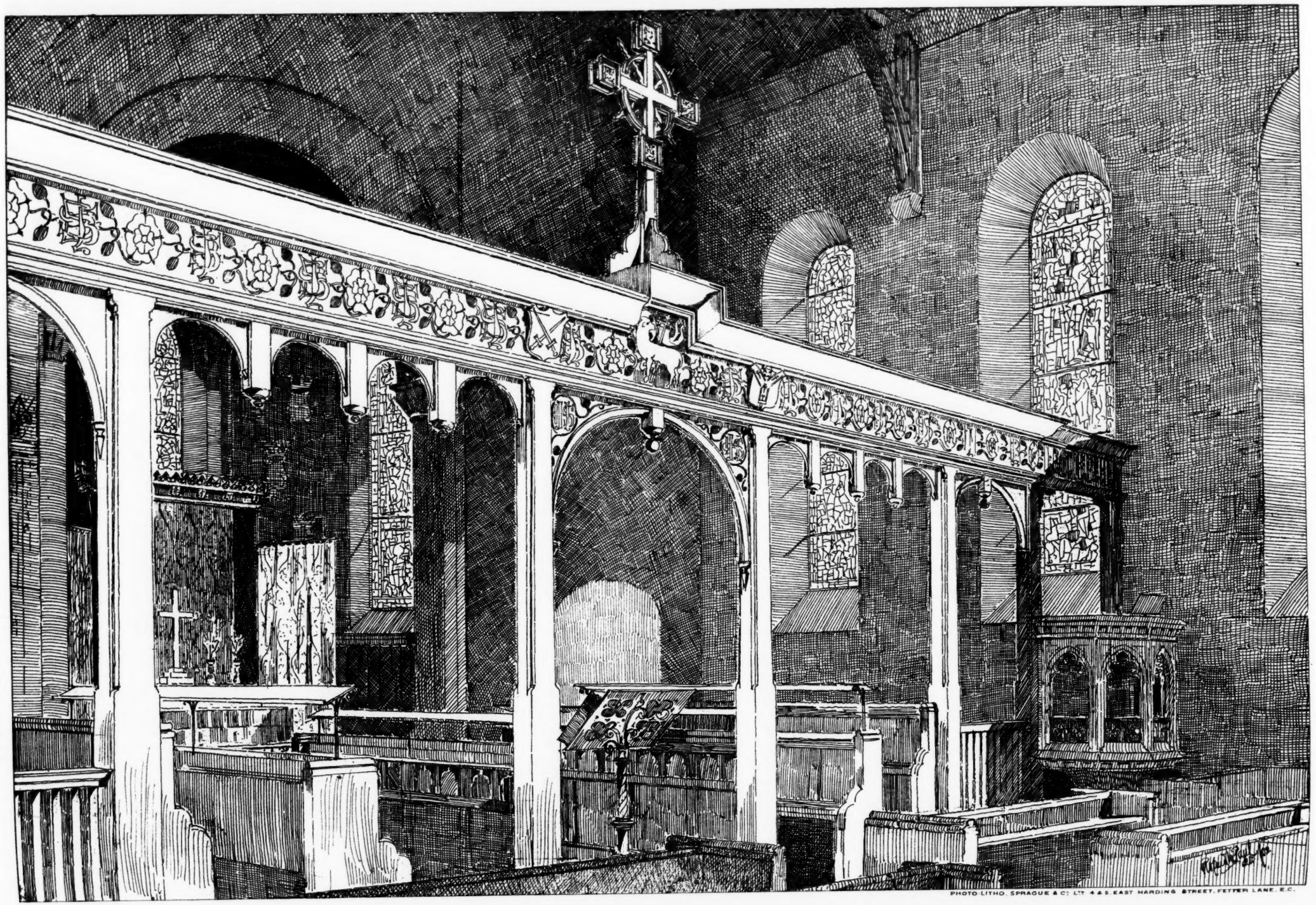

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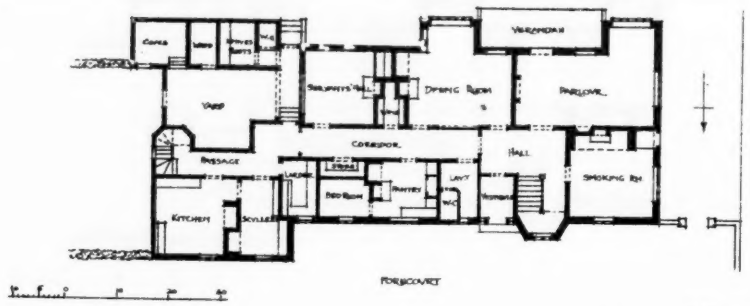

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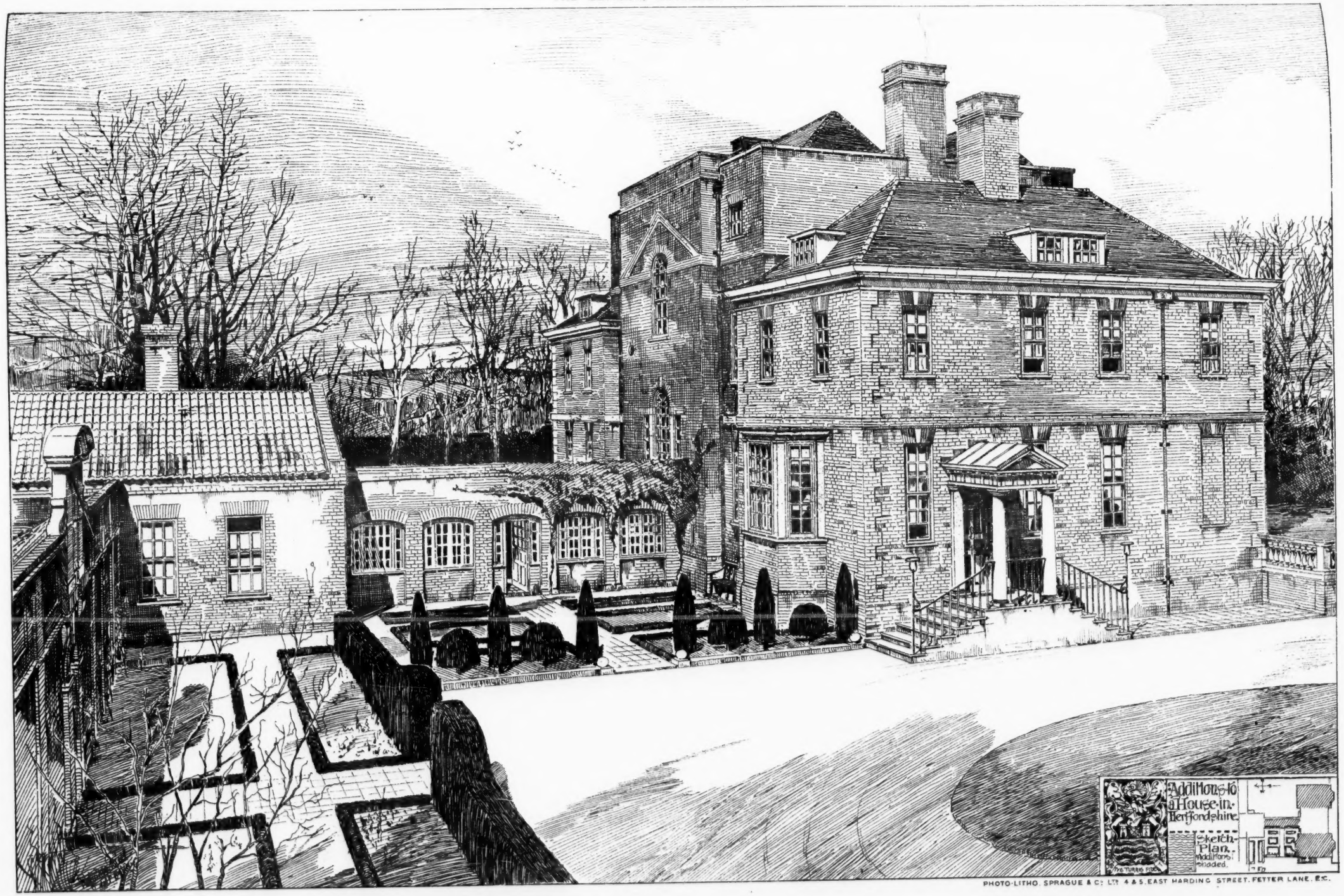

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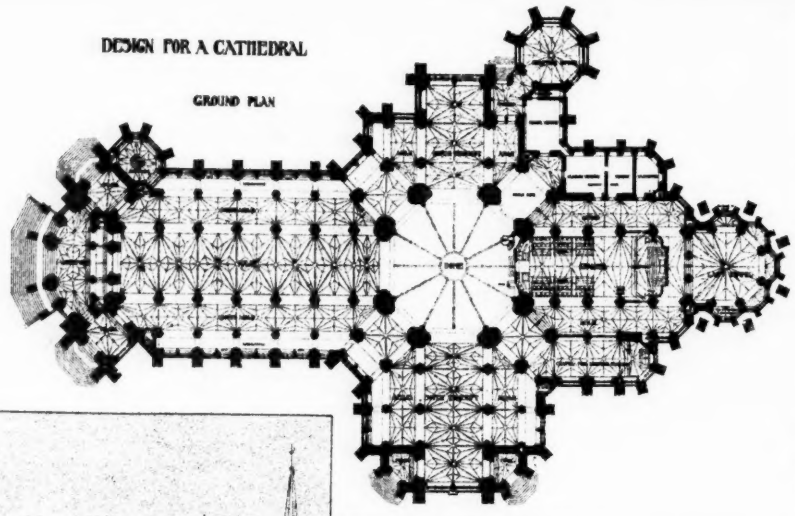

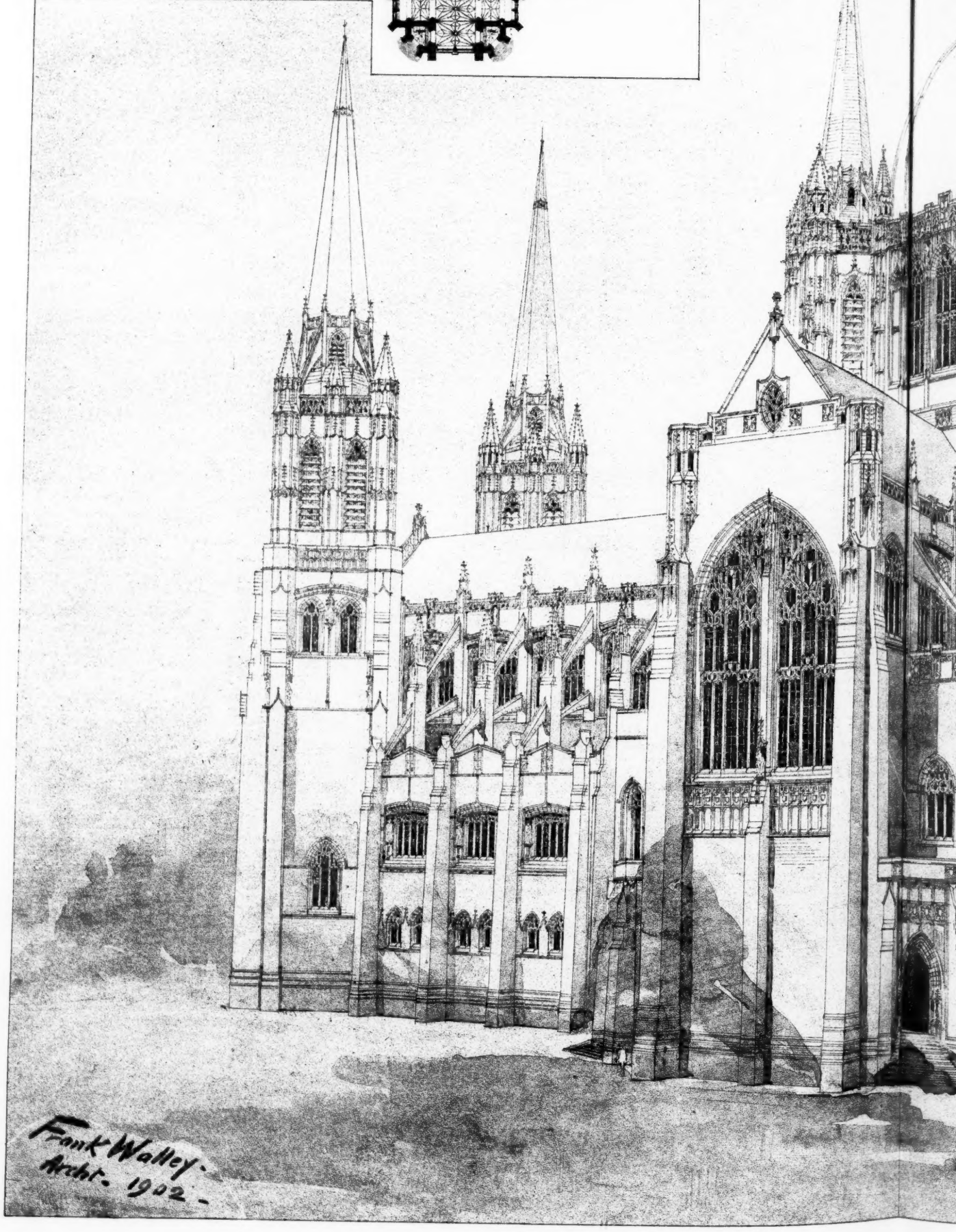

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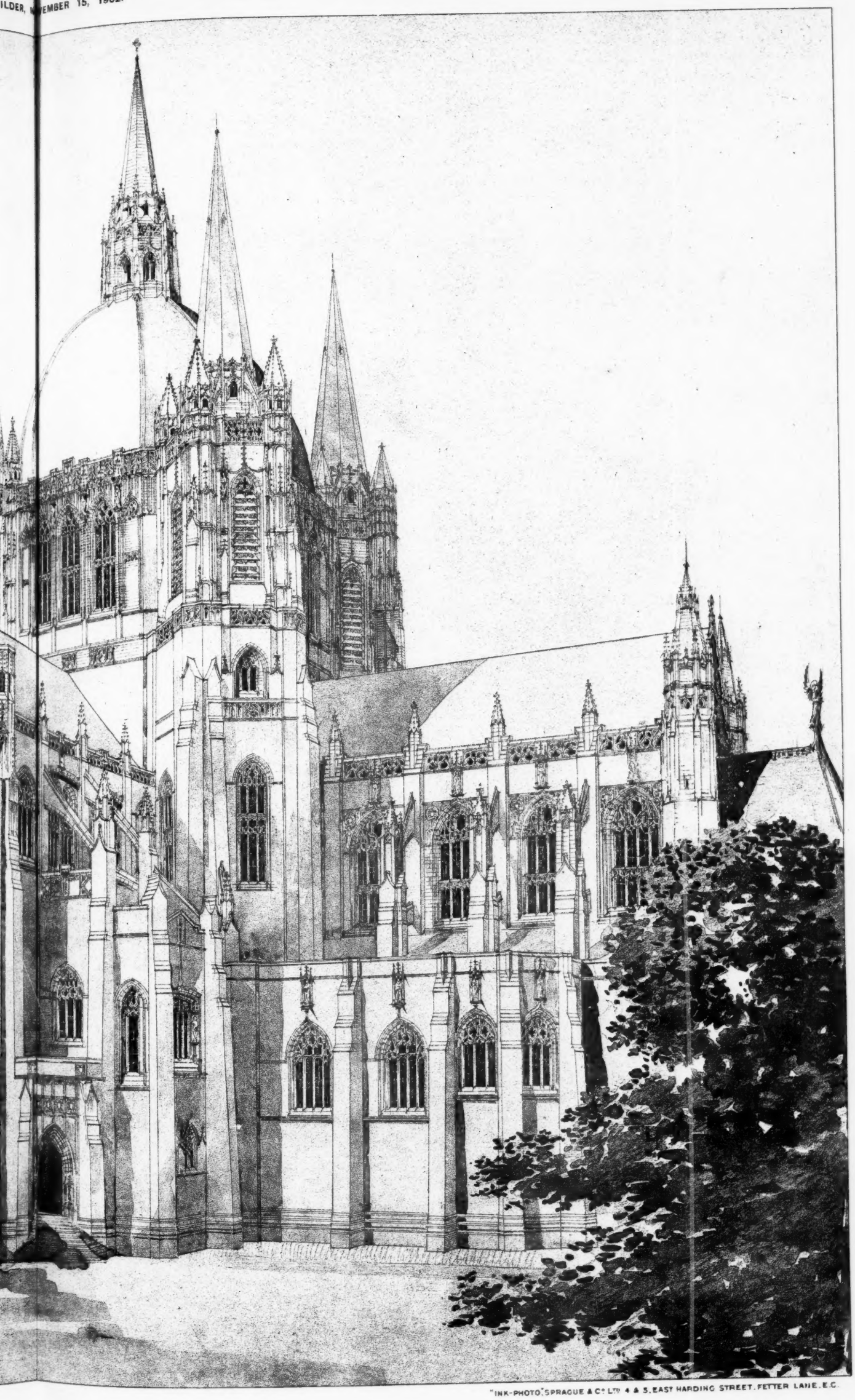

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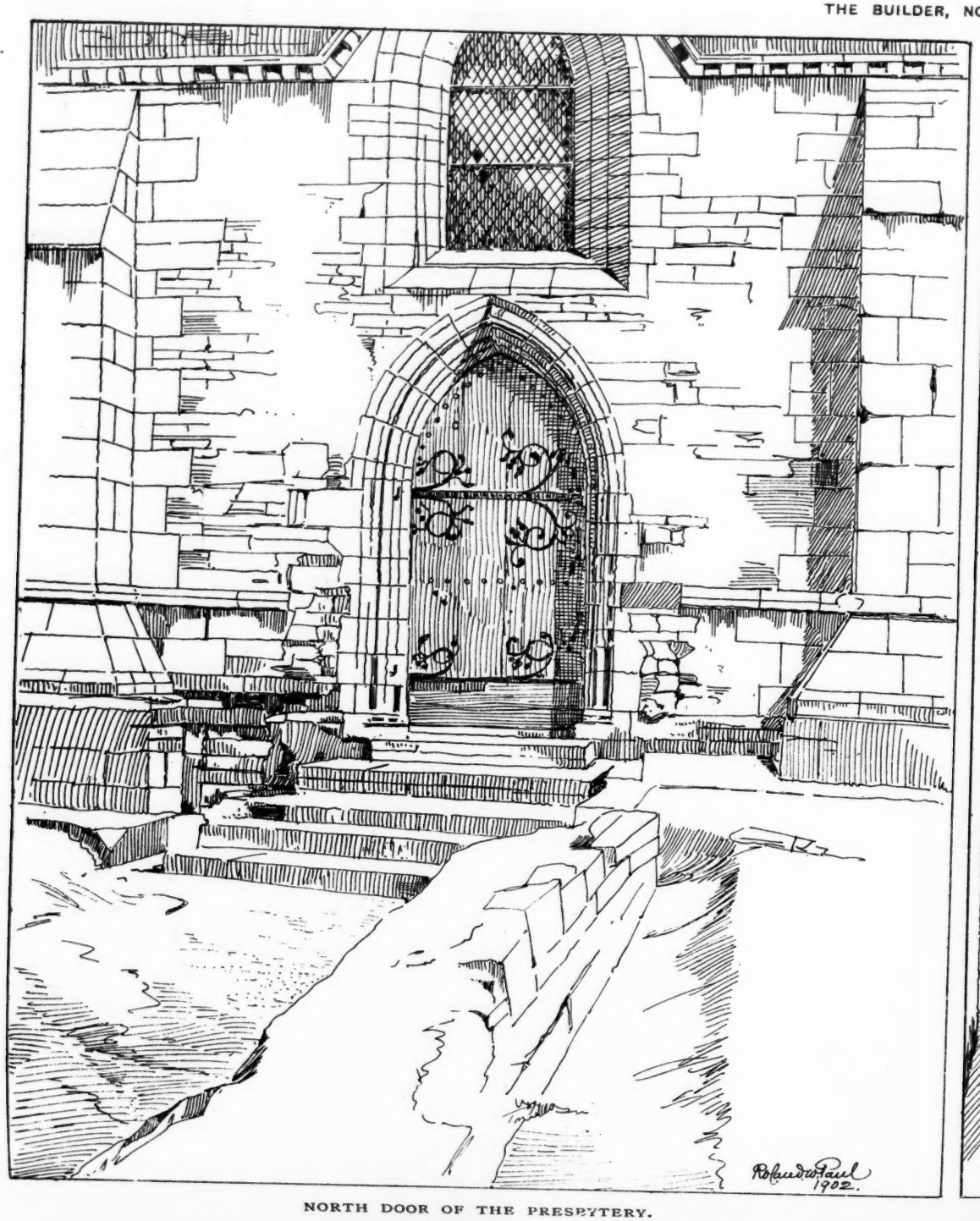

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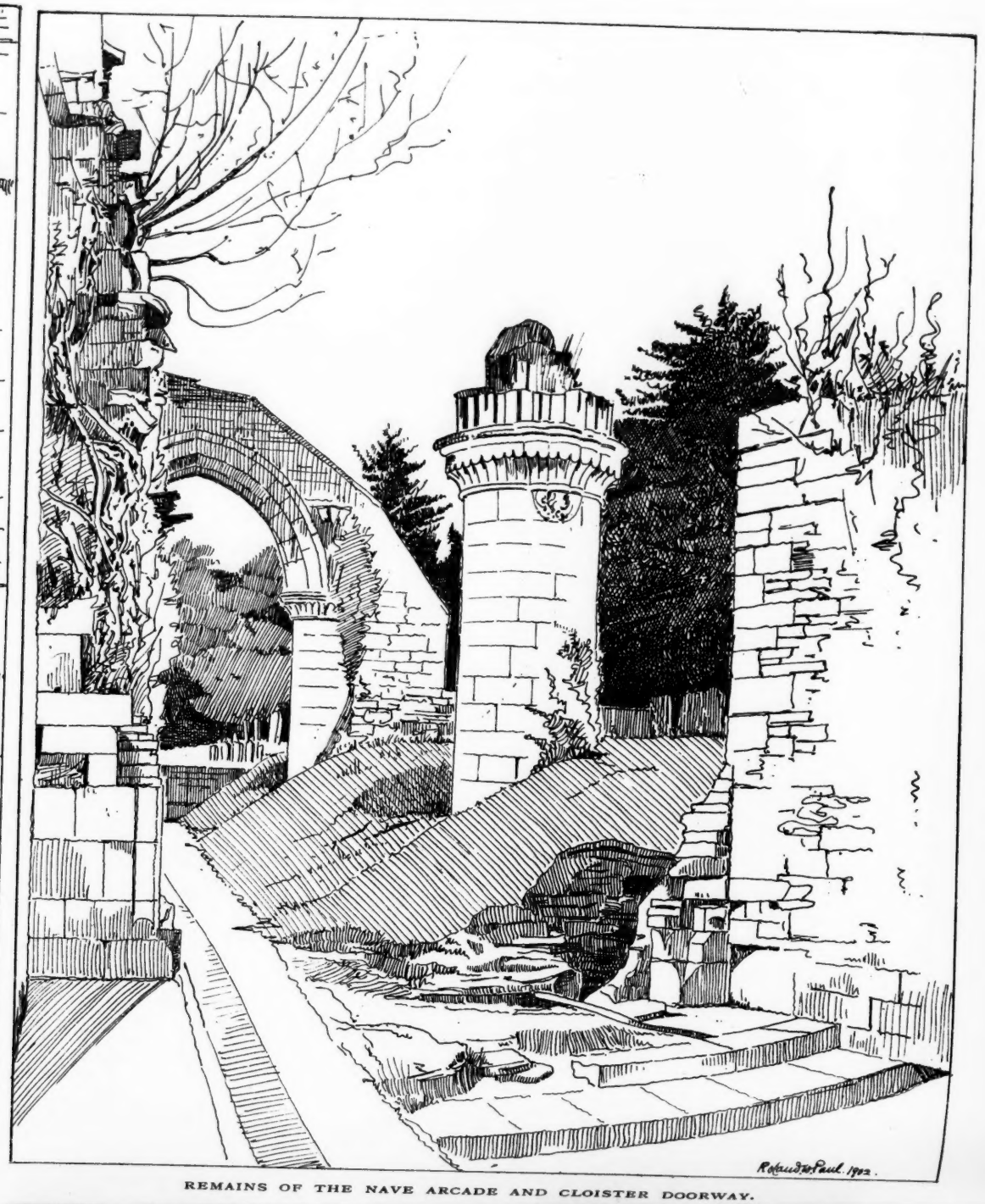

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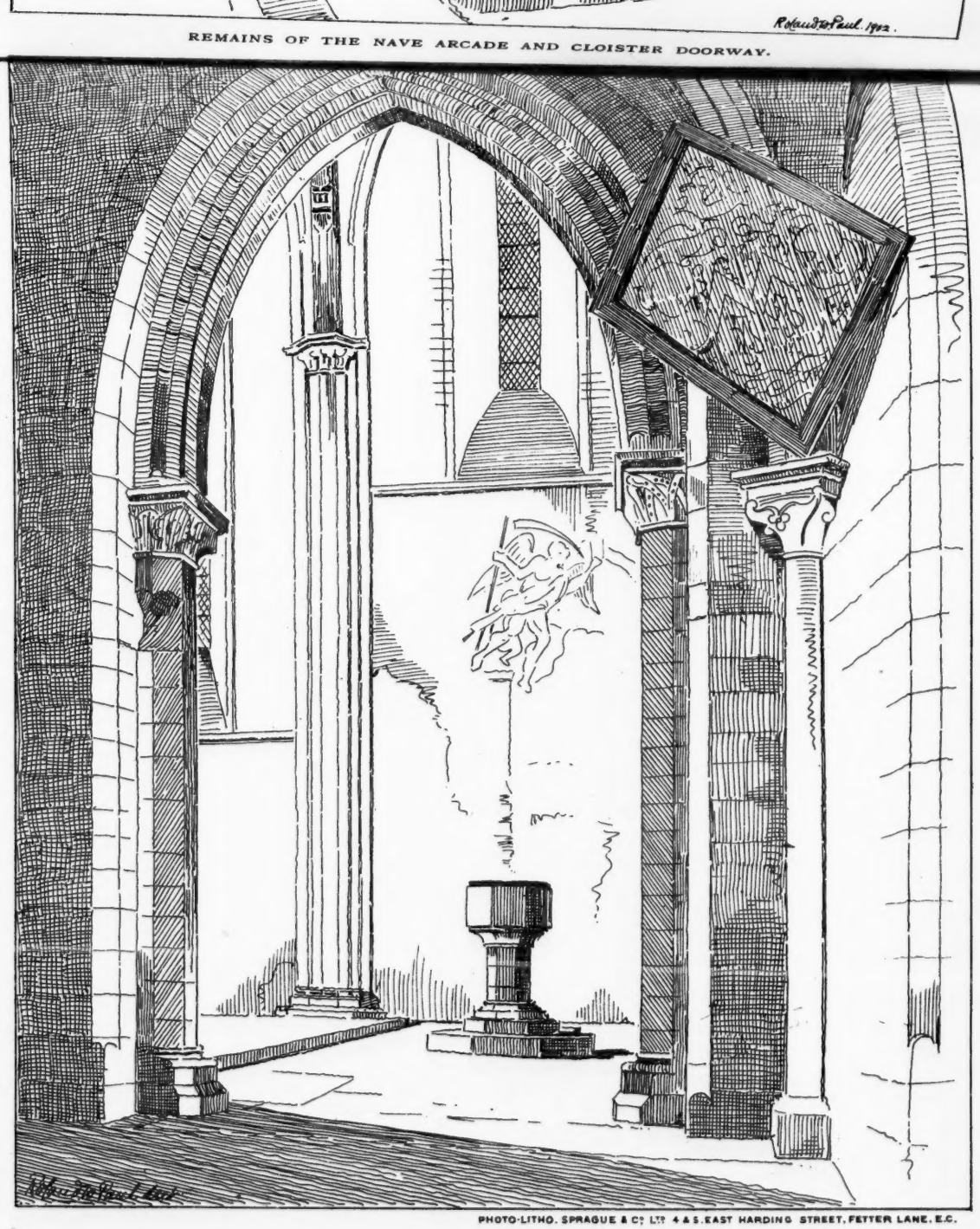

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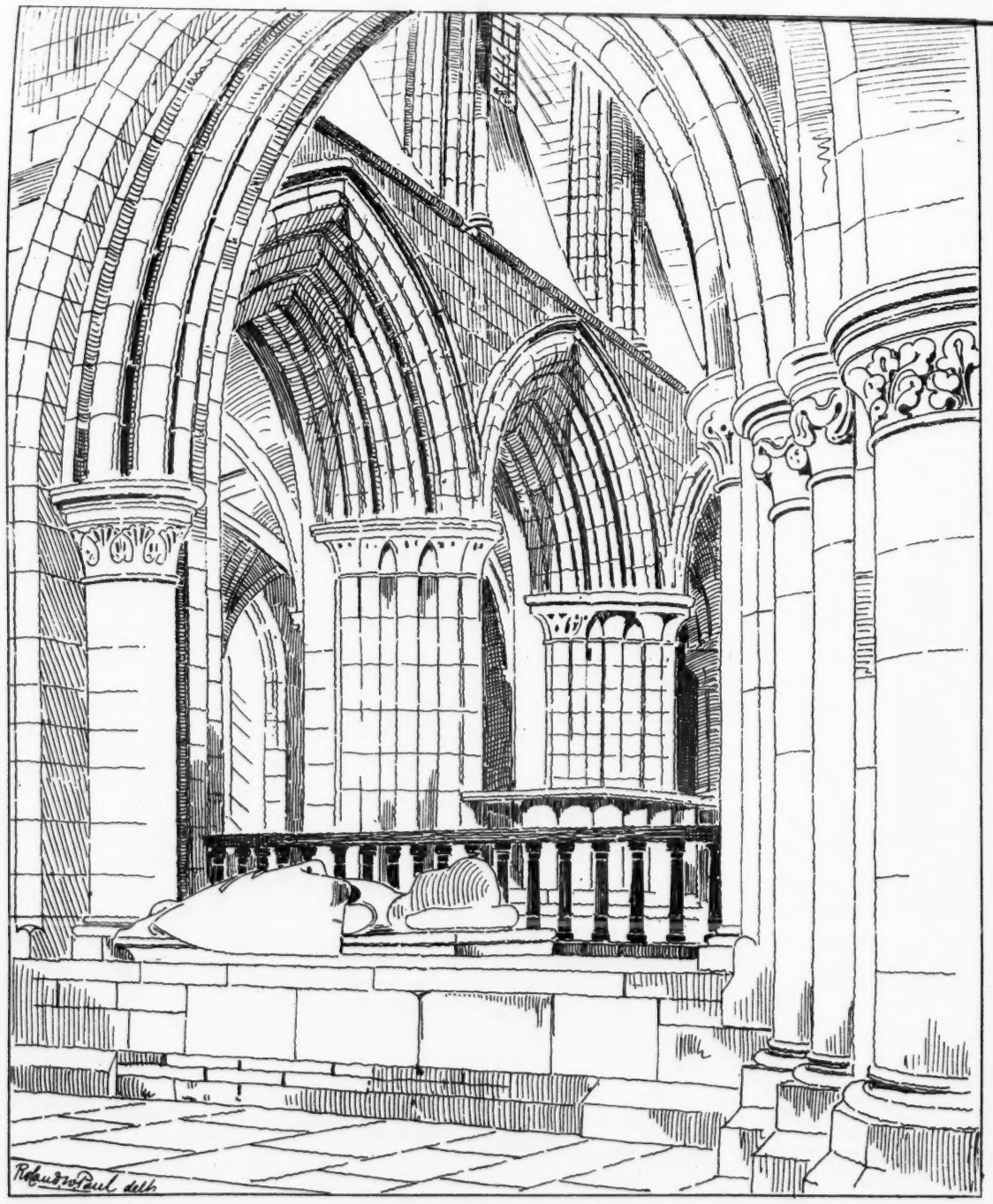

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